

EXAMINING MEDICAL STUDENTS — THE MULTIPLE-CHOICE QUESTION PAPER

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In 1956 Prof. G. M. Bull¹ in reporting on his analysis of the final examination in medicine at Queen's University, Belfast, noted that examiner-error did not disappear from written papers until the multiple-choice question was introduced. Professor Elliot² has noted the same superiority of objective over subjective questions. In the objective multiple-choice question paper the examinee is expected to answer a large number of short questions and he is usually offered several answers, his sole task being to select the correct answer and to indicate his selection on a suitable sheet of paper. The answer sheet can be marked by anyone who possesses a key and can even be marked by machine. The questions can be framed in such a way that the examinee is tested on his factual knowledge or on his deductive ability. Variations in marks arise solely from differences between students in their ability to answer correctly the questions set.

There are several additional advantages noted by Professor Bull. One advantage is that it becomes possible to examine over a much greater field than can be covered in the conventional 3-hour, 4-essay type of written examination paper. Another advantage is that related fields can also be touched upon. In this way the examination will test not only the student's ability to retain pertinent facts from other subjects but also the effectiveness of the teaching in these subjects. This aspect is accentuated when the multiple-choice question is used in examining a large number of candidates from several different schools, since the examination will enable the standards within schools to be compared, as well as the standards achieved by individual students within a group or by groups of students within a school.

The present paper reports on the use of multiple-choice questions for comparisons within a class and for comparisons between classes within this medical school.

PRESENT STUDY

During the years 1953-1956 the class examination in anaesthetics was conducted using multiple-choice questions and, with minor exceptions which will be detailed, all students answered precisely the same set of questions, set in the same order and marked with the same key. Needless to say, the question papers were recovered at the time that the answer sheets were collected, and were not released for general study. While there was a loss of 4 papers in the very first year, there was never any evidence that this benefited subsequent candidates, who never knew in advance that they would receive the same set of questions as their predecessors.

The Examination

In 1953 60 questions only were set and 120 minutes were allowed for answering them, as this form of exam-

ination was entirely unknown to the students. Out of a class of 108 students, 1 completed the questions in 50 minutes, while at the end of the 120 minutes 4 had not yet handed in their papers.

In 1954 the number of questions was increased to 120 (the original 60 set in 1953 plus an additional 60) and

TABLE I. PERFORMANCE OF STUDENTS IN FOUR CLASSES, ANSWERING MULTIPLE-CHOICE QUESTION PAPERS

| Total marks as % | Number of students | | | | Total |
|------------------------|--------------------|----------------|----------------|----------------|-----------------|
| | 1953 | 1954 | 1955 | 1956 | |
| 96-100 | 1 | — | — | — | 1 |
| 91-95 | 1 | — | — | — | 1 |
| 86-90 | 11 | 1 | — | — | 14 |
| 81-85 | 16 | 5 | 1 | 4 | 26 |
| 76-80 | 16 | 11 | 5 | 13 | 45 |
| 71-75 | 25 | 18 | 15 | 13 | 71 |
| 66-70 | 20 | 21 | 18 | 19 | 78 |
| 61-65 | 15 | 19 | 22 | 11 | 67 |
| 56-60 | 2 | 11 | 24 | 10 | 47 |
| 51-55 | — | 6 | 6 | 5 | 17 |
| 46-50 | 1 | 1 | 7 | 3 | 12 |
| 41-45 | — | 1 | — | 2 | 3 |
| 36-40 | — | — | — | — | — |
| Total | 108 | 94 | 98 | 82 | 382 |
| Mean mark and SD | 75 (± 9) | 68 (± 8) | 64 (± 8) | 67 (± 9) | 67 (± 10) |

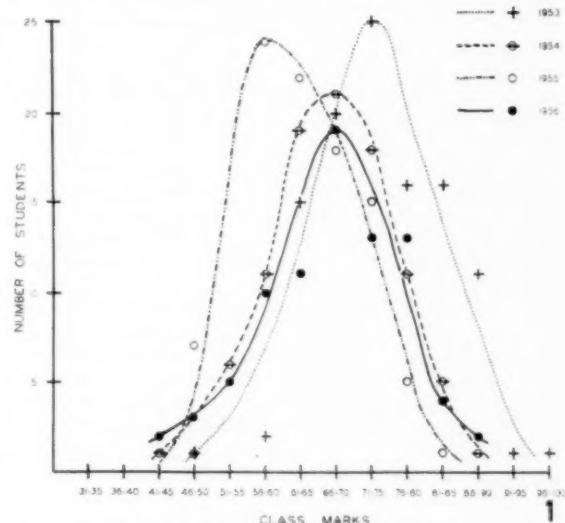


Fig. 1. The results detailed in Table I are graphically set out here to show the variations in the distribution curves from year to year.

180 minutes were allowed for their completion. In 1955, and again in 1956, the same 120 questions were used but only 120 minutes were allowed for completing the examination.

The performance of each class is set out in Table I and is also shown in Fig. 1. It will be seen that the time allotted for answering questions undoubtedly has some effect upon the efficiency of the class.

FACTORS AFFECTING CLASS PERFORMANCE

It is too often assumed that poor examination results indicate poor student material. Such an assumption is often very far from the truth and teachers are well aware that the material presented to the student, as well as the way in which it is presented, are factors which have an important bearing on examination results. Examinations test not only the ability of the students, but also the ability of their teachers.

There are a number of other variables which may affect the learning process, including such obvious ones as the health of the student and his natural interest in the subject being taught. In turn, there are variable factors which will affect the ability of the student to respond adequately to tests of his learning. The answers to some of the questions set in the anaesthetic class examinations show that whole classes may differ in their knowledge of commonplace matters.

Influence of Teaching

For the most part the response from year to year to the multiple-choice questions did not alter significantly but for some questions there was a progressive improvement suggesting that the subject was being more adequately taught. Thus, question 30 stated: 'The number of calories required to raise the temperature of one gram of substance through one degree Centigrade is a measure of its (a) latent heat of fusion, (b) melting point, (c) latent heat of vapourization, (d) specific heat, (e) respiratory quotient'.

The candidate had only to select the correct answer and ring it. In 1953, 12% failed to answer correctly but by 1955 only 3% failed.

Duration of Examination

Sometimes an increasing difficulty in scoring the correct answer suggested that the time available for answering each question (2 minutes in 1953 but only 1 minute by 1955) affected the result significantly, although it was not possible to exclude a progressive alteration in teaching. Thus, question 7 asked: 'The trigeminal nerve is primarily a sensory nerve. Which one of the following of its branches carries motor fibres? (a) Ophthalmic branch, (b) maxillary branch, (c) mandibular branch, (d) nasociliary branch, (e) mental branch'. Of the 1953 class 19% failed to select the correct answer, 45% failed in 1954, while by 1955 the failure rate had crept up to 60%.

Class Ability

In other questions there was a fluctuation in response which appeared to reflect the ability of the class more faithfully. In question 1 (quoted below) it was possible to discard 3 answers with some certainty on grounds of common sense alone. The student was left with 2 reasonably possible answers, (a) or (c), and the selection of the correct answer was still not particularly difficult. The

class of 1953 was the only one in which the historical fact here tested, was deliberately accentuated in teaching and their failure rate was 18%, but the class of 1954 (failure rate 30%) did not measure up to their colleagues of 1955 (failure rate 21%), who had less time available in which to deduce the answer. Question 1 read: "The introduction of anaesthesia and the development of Lister's principles of antisepsis are perhaps the two greatest contributions to the art of surgery." In connection with this quotation which one of the following statements is correct? (a) anaesthesia antedated Listerism, (b) anaesthesia and Listerism were perfected in different centuries, (c) anaesthesia and Listerism were perfected in the same year, (d) anaesthesia postdated Listerism, (e) the work of Lister made the development of anaesthesia possible".

Chance

Since each question was provided with 5 possible answers, one of which had to be correct, it was possible to score 20% by chance alone, and to demonstrate this 20 people were asked to complete answer sheets at random and without access to the question sheets. Their answer sheets were then marked from the keys. The mean marks for these chance answers were 22% (standard deviation 4) and 21% (SD 5) for each of the 2 sections of 60 answers.

This fact, that where 5 alternatives are offered as answers for each question 20% can be scored by guess-work, was one reason for having each class set its own pass mark by calculating the mean mark and the standard deviation of the mean. But while 20% could be scored by chance, the odds on scoring 100% by chance alone were 1 in 5⁶⁰ for a 60 question paper and much more astronomical for a 120 question examination. Chance, therefore, played a very minor role in the end, for each candidate had exactly the same chance.

Misinformation

It is obvious that question 67 was answered incorrectly (mean failure rate 93%) largely because the classes were misinformed, for if the whole class had guessed at the answer at least 20% should have guessed correctly. Question 67 was: 'The main factor determining the filling of the coronary vessels is: (a) the systolic pressure, (b) the pulse pressure, (c) the diastolic pressure, (d) the mean aortic pressure, (e) the pulse rate'.

Teaching

As already observed, it is not alone *what* a student is taught, but how he is taught, that is critical. To realize this, examine the response to question 35, which read: 'The percentage of oxygen in ordinary room air is: (a) 12.7%, (b) 14.6%, (c) 18.8%, (d) 20.9%, (e) 21.1%.

The answer to this question is usually taught first in preparatory-school science courses and is certainly reiterated at the university level in both physics and physiology. Yet 74% of the 108 fifth year medical students in the 1953 class were unable to answer this correctly. Why there should have been so much difficulty in answering an elementary general knowledge question is in itself a question posing fascinating fields for speculation.

GRADING STUDENTS

There is little doubt that, in general, once a medical student has passed into the clinical years of study, it will

only be a matter of time before he graduates into the ranks of the profession. It is common experience that selection on academic ability is exercised largely in the first year of study (biology, physics and chemistry), to a lesser extent in the second year (anatomy and physiology) and to an even smaller extent in the third year (pathology, bacteriology and pharmacology). But if examiner-error plays a large part in determining the results of the conventional written examinations, this selection of students cannot be regarded as being naturally related to the ability of the students themselves. It becomes even less natural in the clinical years, when failure to pass the final M.B. examination casts, however obliquely, some shadow upon the teaching ability of the clinicians to whom the student has been apprenticed, and the natural bias of the teachers, who are in the main the examiners also, will be towards conversion of any shadow into reflected light. Most medical schools probably allocate marks somewhat on the lines of Queen's University, Belfast,¹ where 50% of the marks in the final examination in medicine are awarded on clinical and oral examination, the value depending entirely upon the examiner's impressions of the student's ability.

There is, in most walks of life, a form of natural selection based largely upon ability, but such ability is measured, not against those senior or junior to the person being measured, but against his contemporaries. It does not seem unreasonable to ask that such a natural selection of student material should also operate throughout the whole period of training and the use of the multiple-choice examination offers this. It is not necessary in such an examination to set an arbitrary pass mark and then resort to examiner bias or mathematical manipulations in order to ensure that an adequate proportion of the class leaps the hurdle. The calculation of the mean, and the standard deviation of the mean, of the marks scored by the participants in the examination will enable the examiner to reject about 17% whose marks fall below the mark determined by the calculation of the value of 'mean mark minus 1 standard deviation value'. These 17% are not rejected because they cannot achieve a standard set by the examiner but because they cannot achieve the standard set by their fellow students.

Reference to Table I shows that in this particular series of examinations, with a statutory pass mark of 50%, only 4% of the students will fail. But if the pass mark is adjusted to 70% to compensate for the 20% which can be scored by chance alone, then only 41% will pass. Thus more than half the class (55%) will fall within the range where chance alone, rather than ability, will determine their fate.

Where the class sets its own pass-mark one of the most prominent criticisms of the multiple-choice question paper falls away. Correspondence following the publication of Professor Bull's report leaned heavily upon the possibility that more than one of the answers provided might fit the question, according to the opinion of the critic or the examinee. But if the whole class is of the opinion that (a) is the correct answer when the examiner requires (b), then no student will be penalized at all. Those students who favour (a) when the majority of the class, as well

as the examiner, recognize (b) as the answer are, it is true, penalized for deviating from the popular view. This is a penalty which all original thinkers must learn to accept with dignity. The history of our profession is illuminated by numerous examples of physicians whose contributions were not recognized until after their death — a death not infrequently hastened by the scorn of their contemporaries.

To acquire an equanimity to such injustice at an early age will inevitably raise the standard of medical practice, as will a 17% loss from the student body in each of the 6 years of study, for only 35% of the students entering the first year will finally graduate where there is a loss of this magnitude in each of the 6 years. Actually, the use of the frequency distribution curve to determine which students are to pass an examination will not lead to a steady 17% rejection each year, or for each subject, for if the curve is positively skewed the class will have either a generally lowered ability in the subject in which they are being examined, or a poorer teacher, or both, and a larger percentage will tend to fail. The converse is of course also true.

If it is felt that the formula leads to too great a loss, then it can be adjusted downwards by multiplying the standard deviation value. Multiplying by 2 will lead to a failure of only 3% of the class.

SUMMARY

A discussion of the objective examination of medical students by means of the multiple-choice question paper is presented. With this technique it is possible to compare the general ability of succeeding classes of students and, by detailed analysis of the answers to each question, it is also possible to get some idea of the ability of each class in various subjects in the medical curriculum, as well as the ability of their teachers.

The results of the use of this type of examination technique are superior to more conventional methods since the individual student fails or passes a standard set by his colleagues, and not one set by an examiner who may be biased, quite unconsciously, when making border-line decisions.

While it may be quite true that a doctor should have a suitable personality, as Professor Bull suggests, it must be remembered that patients themselves differ in their personalities and it will never be possible to isolate and foster a 'universal' medical personality which will appeal to all patients. For this reason alone it is probably safer to exclude personality in grading medical students, and to concentrate rather on their ability to answer questions correctly. For, as he seeks medical aid, each patient asks, silently or volubly, that his medical attendant should provide factual details of diagnosis and prognosis. The doctor who can give the correct answer is the doctor the patient would like to have and since the medical profession exists only in order to serve the patient, perhaps we should use the patients' needs as a yardstick for medical training.

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THE DEAF CHILD AND HIS EDUCATIONAL NEEDS

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It has been estimated recently that the incidence of deafness among South African children, taking all races into account, is as high as 1 in 500. Bearing in mind this figure, which may come as a surprise to many, it is worth while to consider the needs of the deaf child, viewed in relationship to his handicap and in the light of modern educational practice.

Diagnosis

A deaf child's needs cannot be assessed until it has been established that he is deaf. Unfortunately, this step, which must come first, is probably the most difficult; so much so, that one is justified in regarding more efficient and earlier ascertainment of deafness as almost the greatest need of deaf children. The importance of the time factor will be apparent. By the sixth month, when hearing babies are interpreting and reacting to sound, a congenitally-deaf child is already being handicapped mentally, socially, and emotionally.¹ His education, therefore, should begin from this stage, if at all possible, or else the length of the delay before his deafness is first recognized should be reckoned from this time.

However, the grosser effects of the handicap are usually noticed only after the 18th month, by which time, when hearing babies are using, or responding to, a vocabulary of half-a-dozen words or more, the deaf baby is still uttering primitive, instinctive, babbling sounds.

Timely Special Training

This, then, is the point at which it is practical and logical to begin the special training which the deaf child needs. Under optimum conditions, the mother will receive guidance on how to adapt herself to a completely new approach to her baby, entering a world where vision and light are primary considerations, her first task that of attracting her child's eyes towards meaningful actions, timely facial expressions, and movements of the visible speech organs used in simple words and phrases. If this were done—and it has been done with success on a considerable scale overseas—a start would be made in whittling down the lead which the hearing baby of this age already has over his deaf brother.

But these are optimum conditions. A great many deaf babies in this country are not recognized as deaf until they are more than 3 years of age. The reasons for this are several. Wilful blindness on the part of the parent, well-meaning but incorrect advice on the part of friends, and procrastination in consulting a doctor, are a few. However, even where medical advice is sought in good time, and the child is proved or even strongly suspected of being deaf, *all too often nothing is done and no use is made of the knowledge gained*. This cannot be too strongly stressed. The mere fact of having established the child's deafness is no achievement at all unless steps are taken to act upon the information from that very minute. To advise the parent to 'wait until he is 5 and then bring him back', or to defer action because of the future possibility of remedial surgery, is to deny the child his right, and his urgent need—that of special educational treatment from the earliest possible age.

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Educational Needs

In considering the educational needs of the young deaf child, it is not the obvious effects of deafness that are important. The child's lack of speech is but a symptom of his handicap, and speech training alone will never remedy it. It is in the psycho-linguistic aspect of a child's development that deafness does the most damage.

Not to hear speech is not to hear language, i.e. words, names, phrases, and the countless ways in which these can be joined together meaningfully. An untrained deaf child who has never heard words will never think in terms of words, he will think in a series of vague, uncaptioned pictures, and his thinking will never progress beyond this primitive and inefficient level. The urgent need of the deaf child is to be introduced to language early through lipreading, with speech, reading, and writing following later. The growth of his understanding will depend upon the speed of his learning to make intelligent use of words for the purpose of defining his thoughts and feelings as clearly as possible to himself, and of expressing them as clearly as possible to others.² All this the hearing child will pick up naturally, but to the deaf child it has to be taught artificially and systematically. The deaf child's greatest need, therefore, is early training in the elements of his mother tongue, and this can only be given to him by trained teachers of the deaf or by the parents themselves under special tuition.

For the preschool child much can be done in homes where parents are willing to cooperate. School principals will always give advice and help. For example, I myself undertake to train any parent recommended to me in this important matter of starting young deaf children on the first steps in their cruelly steep educational ladder, either by personal interviews or through the post.

The usual age for admission to a school for the deaf is 3 years. At the Fulton School for the Deaf, Gillitts, Natal, the fees are £15 a quarter, inclusive of board and tuition. For those unable to afford this, Government grants are available, for which application should be made through the principal.

SCHOOLS FOR THE DEAF IN SOUTH AFRICA

Transvaal

European: St. Vincent's School for the Deaf, Johannesburg; Transoranje Skool vir Dowes, Pretoria.

Non-European: Kutlwanaong School for the Deaf, Roodepoort.

Cape Province

European: Dominican Grimley School for the Deaf, Tuin Plein, Cape Town; Worcester Skool vir Dowes, Worcester.

Non-European: Dominican School for the Deaf, Wittebome; School for the Coloured Deaf, Worcester.

Natal

European: Fulton School for the Deaf, Gillitts (near Pine-town).

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South African Medical Journal : Suid-Afrikaanse Tydskrif vir Geneeskunde

EDITORIAL : VAN DIE REDAKSIE

THE SURGERY OF TRAUMA

Less attention has been paid in research, teaching, and practice to traumatic casualties than to other branches of surgery, and in the past there has been a tendency in hospitals to leave the responsibility for the injured patient, even in serious cases, to junior members of the staff. Much new light, however, was thrown on the subject by the experience gained in the treatment of casualties in the campaigns of World War II and the Korean War, and this branch of surgery is coming to assume greater importance in our civilian hospitals. In the UK, a year ago, the British Orthopaedic Association submitted recommendations for improving the hospital accident service, and in March 1960 an authoritative committee was set up to examine this part of the National Health Service.¹ In his recent article in this *Journal* Schrire² has written on the organization of the casualty department of a teaching hospital. He emphasized that the department should be so organized that accident cases are dealt with on arrival by a competent surgeon or team, and that the resources of all departments of the hospital should be fully available for consultation or treatment so far as may be necessary in any particular case.

A symposium³ sponsored by the Council on Drugs of the American Medical Association has recently been published on the surgery of acute trauma. It comprises a number of articles by contributors on various phases of this subject, and, while these cannot be adequately summarized in one short article, some of the points made in the symposium are here referred to.

It is well recognized that in general the sooner the injured person is removed to a hospital the better, especially in serious cases. Nevertheless, some measure of delay is often warranted in order to protect the patient against the further injury he might suffer in transportation.⁴ If possible, any necessary attention should first be given to ensure an open airway and to arrest haemorrhage, and then other injuries may receive attention; fractures should be carefully splinted. If the blood pressure has fallen to a dangerous extent, suitable infusion may be given during transportation.⁴ These attentions go beyond the ordinary meaning of 'first aid', and it is obviously desirable that in serious cases a doctor should supervise the attention to the patient at the scene of the accident. The positioning of the patient during transportation may be of great importance, especially if he is unconscious or if, for example, there are signs of injury to the spine.⁴ Discretion should be exercised in the giving of morphine or other narcotics (see below).^{4,11}

For the patient admitted in shock, resuscitation is the first measure called for. The blood pressure begins to fall when the acute loss of blood reaches about 20% (1,000 c.c.) of the blood volume, and by the time 40% (2,000 c.c.) has been lost the blood pressure becomes imperceptible.⁵ The initial routine reported by Schrire² is to set up an intravenous saline drip and, after drawing off a sample of blood for cross-matching, to give two 250 c.c. bottles

of type-O Rh-negative blood as quickly as possible, by which time plenty of cross-matched blood should be available. 'No patient injured or exsanguinated or in shock should leave the (casualty) department unless his blood pressure is 100 mm.Hg systolic and rising'.⁵ Howard⁶ discusses the value of plasma, dextran and saline as volume expanders, but emphasizes that after haemorrhage blood is preferable for replacement. It is noteworthy, however, that in the initial treatment of burns (in which the fluid loss is in the form of plasma) Wilson and Stirman⁶ conclude, after statistical analysis of their results, that saline given by mouth and vein is successful and safe, and that the use of whole blood in the first forty-eight hours after a burn is usually unnecessary and often harmful.

Infection is a major problem in the management of injuries. Prophylactic antibacterial treatment (apart from tetanus) is considered to have had only a limited influence on the incidence of infection, though antimicrobial treatment has been of great value in the control of established wound infection.⁸ The most important factor in combating wound infection is sound surgery. In the treatment of various injuries, such as gunshot wounds and open fractures, emphasis is laid on the importance of removing all devitalized tissue (débridement).⁷⁻¹⁰ Failure in this respect leads to wound infection, including tetanus. In the management of fractures, the accurate reduction of the fracture minimizes deadspace and this predisposes to healing without infection. In the Korean War it was found that in repair work to major blood vessels it was of primary importance to excise all the injured portions of the vessels, including portions which looked normal but in which injury could be discovered on histological examination.⁷

Beecher¹¹ contributes to the symposium³ an interesting article on the control of suffering in severe trauma and on the use of morphine. There are two components to such suffering, viz. (1) pain that is caused by the stimulation of the pain nerve-endings, and (2) a 'reaction component' which is determined by the 'significance' of the wound. Thus, of soldiers severely wounded in battle, mentally clear and not in shock, 'only 25% stated, in response to a direct question, that they had enough pain to want anything done about it'. Yet in civilians with far smaller postoperative wounds the figure was 80%. For the soldiers the wound marked the sudden end of the war and a ticket to safety and perhaps to home. Sedatives like barbiturates may relieve the 'reaction component' in the suffering of an injured patient. Even placebos are known to relieve the suffering in a proportion of cases, especially in those where the stress element is great.¹¹ Artz⁴ writes: 'Emotional stress as well as physical discomfort must be alleviated as much as possible'.

Great care should be exercised in the use of morphine and other analgesics. In the presence of a severe injury a large dose of morphine may be unnecessary or even dangerous. Three reasons are given for this:¹¹ (1) An exsanguinated patient is extremely sensitive to the depre-

sant effect of morphine. (2) If a pneumothorax is present a small dose of morphine may be fatal. (3) In shock, the peripheral circulation may be almost inactive and morphine deposited by subcutaneous or intramuscular injection may be absorbed so slowly that no effect is produced. A second or even a third dose may then be given, and after resuscitation these deposits of morphine will be absorbed together, which may lead to morphine poisoning or even death. Beecher¹¹ recommends that if a patient in shock needs morphine an intravenous injection should be given of one-third of the usual dose.

In the management of patients with multiple injuries Artz,⁴ like Schrire,² urges that a general surgeon should be in charge, calling in consultants representing various specialities as required. Multiple-injury cases should not, for instance, be put in the exclusive charge of an orthopaedic department because fractures are present, or of a neuro-

logical department because the patient is unconscious. The injuries which present the greatest danger to life should be dealt with first. 'The restoration of cardiorespiratory physiology must come first, and then treatment of injury to the hollow viscera such as intestines, bladder, and occasionally lung and heart. Treatment of injuries of the liver, spleen or diaphragm may accompany these procedures.... Open injuries of the muscle and bone receive next priority. Usually closed fractures, head injuries, and laceration of soft parts, can wait . . .'.¹²

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KUATZU... DOELTREFFENDE MANUELE KUNSMATIGE BLOEDSOMLOOP?

Die Japanse opwekkingsmetode, wel bekend onder joejitsu-soe-deskundiges as „kuatzu“, blyk volgens onlangse werk¹ die ernstige aandag van ons beroep te verdien. Kuatzu verlang dat die pasiënt op die maag lê soos vir Schafer se metode van kunsmatige asemhaling, maar die arms word sywaarts uitgesprei. Die opwekker stoot nou een of liefs albei polsgewrigte teen die sewende servikale werwel, en wel met al die krag tot sy beskikking, reëlmatrik nes 'n skrynwerker met sy hamer; maar, in teenstelling met bloot kunsmatige asemhaling behoort die spoed minstens 70 per minuut te wees.²

In die berig waarna ons verwys,¹ word wel 'n tegniek van flink stote aan die hand gegee wat miskien beter bestempel kan word as „stamp“ teen die sternum met die pasiënt *op sy rug*; en, al is daar geen melding van joejitsone nie, dui die ondersoek terdeé, op 'n wetenskaplike gestaafde wyse, daarop dat beoefening van hierdie beginsel 'n toereikende bloedsomloop kan bewerkstellig sowel as handhaaf. Volgens hierdie werk vanuit die alombekende Johns Hopkins-hospitaal slaag die metode sonder uitson-

dering, in teenstelling met die enkele vuishou teen die prekordium, 'n prik in die miocard met 'n naald of 'n flink opblaas van die longe . . . wispetlurige metodes gekenmerk deur so 'n mate van mislukking dat die meeste mense vandag hul gebruik afkeur. Kouwenhoven en sy kollegas³ berig dat met hul metode daar oorgenoeg tyd was om elektrokardiografiese ondersoek te stel, en, in die gevalle van ventrikuläre fibrillasie, om elektriese defibrillasië sukssesvol toe te pas al was daar meer as 'n halfuur versuim met die soektag na 'n defibrillator.

So 'n doeltreffende manuele kunsmatige metode om die bloedsomloop aan te wakker, is duidelik van die grootste belang. Juis daarom behoort hierdie werk sonder versuim bevestig te word, veral die bewering dat defibrillasië elke keer slaag sonder toevlug tot thoracotomy, iets waartoe daar tog te dikwels die nodige moed en veral geriewe ontbrek.

1. Kouwenhoven, W. B., Jude, J. R. en Knickerbocker, G. G. (1960): *J. Amer. Med. Assoc.*, **173**, 1064.
2. Flagg, P. J. (1928): *The Art of Anaesthesia*, 4e uitg., p. 119. Philadelphia: J. B. Lippincott.

KUATZU... EFFICIENT MANUAL ARTIFICIAL CIRCULATION?

Kuatzu, or the Japanese method of restoring life, is a definite method of resuscitation used by jiu-jitsu experts. The patient is placed in the prone position with arms extended sideways; the operator descends forcibly with one or both wrists in the region of the seventh cervical vertebra with the regularity of a carpenter wielding a hammer.¹ Although very old, this indirect method of cardiac massage has only now been shown to possess indeed the merit so long denied it generally by the medical profession.²

Three members of the Johns Hopkins University School of Medicine¹ have just published a method of 'closed chest cardiac massage'. In contrast to the innumerable existing indirect methods, such as sharp blows to the precordium and forceful pulmonary inflation, which all act fortuitously and are thoroughly unreliable, this new method was shown to provide an adequate artificial circulation allowing time for an electric defibrillator and, of necessity, an electro-

cardiographic apparatus to be obtained for defibrillation with the chest still unopened, if the circulatory arrest proves to be the result of ventricular fibrillation. As may be expected, these workers apply vigorous pressure intermittently above the xiphisternum with the patient in the supine position, and they make no mention of jiu-jitsu.

The importance of this demonstration of efficient manual artificial circulation without thoracotomy is obvious; it certainly needs to be confirmed, particularly the claim of consistently successful defibrillation without opening the chest. This work should be consulted by all surgeons and anaesthetists because of its promise of circumventing the most trying of therapeutic measures—direct cardiac massage.

1. Kouwenhoven, W. B., Jude, J. R. and Knickerbocker, G. G. (1960): *J. Amer. Med. Assoc.*, **173**, 1064.
2. Flagg, P. J. (1928): *The Art of Anaesthesia*, 4th ed., p. 119. Philadelphia: J. B. Lippincott.

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REPAIR OF INDIRECT INGUINAL HERNIA

MODIFICATION OF KOCHER'S METHOD, SIX-YEAR REVIEW

L. HUMAN, M.B., CH.B. (PRET.), F.R.C.S. (EDIN.), formerly, Department of Surgery, West London Hospital and Medical School

Since Bassini described his method for the repair of inguinal hernia in 1884, the operation has been added to or modified in many ways.

In 1943 at a meeting of the Royal Society of Medicine, Edwards stated that 'recurrence is actually and relatively more common after the Bassini operation than any other and for this reason I think the operation should be abandoned'. The number of recurrences reported by different authorities varies from 5 to 20% for indirect hernias (Fallis, Page) with an average recurrence rate of 10% (Rains).

Kocher described his method for repair of inguinal hernia in 1903. Recurrence rates, from reported cases as far back as 1905, are 4.9% by the Kocher technique compared with 7.8% by the Bassini technique — Deanesly, Hahn and Grosse, Daiches and Brenner (Kocher, 1911). Kocher himself obtained a 97% cure with his transposition-invagination method, using it in uncomplicated cases of indirect inguinal hernia.

Both Willis and Collins stressed the importance of disposal of the sac in the prevention of recurrence, combining it with a formal Bassini repair. Craig reported a series of 114 cases of indirect inguinal hernia treated by inversion of the sac through the abdominal wall. His recurrence rate, 4 years after the start of the operation, was 2.6%.

This article reports a modification of Kocher's operation which has been used in 164 cases over the last 6 years, with a recurrence rate of 1.2%. The number of operations performed each year was as follows: 1954, 9; 1955, 22; 1956, 37; 1957, 34; 1958, 38; and 1959, 24. The operation has been used in all cases of indirect hernia even when complications such as strangulation or adhesions of the contents to the sac were present.

OPERATIVE TECHNIQUE

Patients with a cough are adequately treated pre-operatively with antibiotics and physiotherapy. All patients are requested to stop smoking until they are discharged from hospital.

The usual oblique skin incision, starting just medial to the pubic tubercle half-an-inch above and parallel to the inguinal ligament, is used.

The external oblique aponeurosis and the external spermatic fascia are widely exposed. These are then opened by a $\frac{1}{2}$ -inch incision immediately above the external ring, using a scalpel. Each leaf is secured by forceps, held up strongly, and then divided by scissors, care being taken in this way not to damage the ilio-inguinal nerve. (In Kocher's original method the external oblique aponeurosis was not divided and the inguinal canal not exposed.)

The cremaster muscle is picked up between 2 curved forceps and divided, each flap being raised to expose the spermatic cord adequately. If a lipoma is found attached to the cord, this is first dissected off and its blood supply secured.

The sac is now identified, held taut in forceps, and dissected from the cord without disturbing the attachments of the cord to the posterior wall of the canal. A small, non-toothed, dissecting forceps is used and the dissection is continued until the neck of the sac is exposed and carefully dissected from the internal ring without damaging the latter. The contents of the sac are reduced by milking them back

between thumb and index finger and the sac is now ready for invagination and transposition.

In cases of strangulation, or adhesion of contents to the sac, the sac is opened and the contents attended to. The sac is then resutured and invaginated.

The middle of the fundus of the sac is grasped by a curved artery forceps and invaginated upwards and laterally, through the internal ring, keeping the points of the closed forceps close to the anterior abdominal wall. In no instance has the bowel been injured by this procedure. A. Most mentioned 1 case of trauma to small bowel, necessitating closure of an accidental perforation and added 1 case of his own in which small bowel was accidentally incised.

A Czerny retractor is now inserted under the proximal end of the medial leaf of the external oblique aponeurosis, exposing the internal oblique muscle and the ilio-hypogastric nerve. (Kocher made a $\frac{1}{2}$ -inch incision through the external oblique aponeurosis, at the level of the internal ring, after isolating the sac from below only as far as the external ring.)

The layers of the anterior abdominal wall deep to the external oblique aponeurosis are then opened proximally, at a point which depends on the length of the sac as guided by the tip of the forceps applied to its fundus, high enough to take up the slack of the sac and bring it out. A point 5 cm. above the internal ring is usually most suitable. A small muscle-splitting incision, securing each layer in a forceps, is

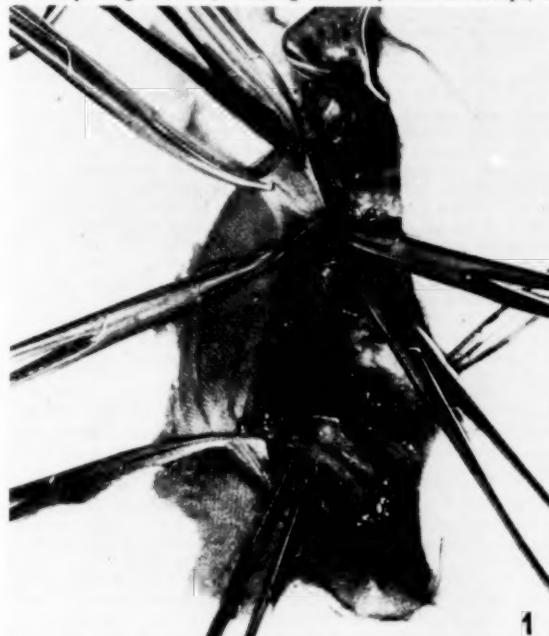


Fig. 1. The parietal peritoneum has been incised, its edges being held apart in readiness for the apex of the inverted sac to be pushed through.

used. The nose of the forceps is pushed through, covered by parietal peritoneum, which is then incised, the edges being caught in 4 small curved artery forceps (Fig. 1).

The fundus of the sac is seized with a straight artery forceps and the curved forceps used to invaginate it is removed and withdrawn through the internal ring.



Fig. 2. A transfixing suture is passed through the edges of the parietal peritoneum and through the middle of the inverted sac which is being forcibly drawn up.

The inverted sac is now forcibly drawn up, its neck transfixated and firmly ligatured, using medium linen-thread sutures which also include the drawn-up edges of the parietal peritoneum, thus closing the peritoneal cavity (Fig. 2).

The redundant sac is excised 1-inch distal to the ligature. Each end of the ligature is picked up in a curved round-bodied needle and passed outwards, picking up the layers of the abdominal wall held up in forceps, including approximately 1-inch of tissue. The 2 ligatures are then loosely tied, superficially to the internal oblique muscle, to avoid atrophy of the intervening tissue and the ends cut in the usual way. (Here Kocher closed the small opening in the external oblique aponeurosis and closed the inguinal canal by a series of interrupted silk sutures in the undivided external oblique aponeurosis.) The cremaster muscle is now carefully sutured with continuous catgut, leaving the spermatic cord in its normal position.

If a combined inguinal hernia with a saddle-bag or pantaloonsac is found, the posterior wall of the inguinal canal is opened, each layer of the fascia transversalis carefully raised, and the direct sac freed. By invaginating and applying traction on the sac of the indirect hernia, a double hernial protrusion can be united into a single sac for transposition. Closure of the posterior wall is performed by overlapping the fascia transversalis without tension, using interrupted medium linen-thread sutures. In this series, 27 of the total 264 inguinal hernias which were repaired had double sacs, an incidence of 10.2%. This stresses the importance of looking for both types of hernia in every case. No repair is made to the posterior wall unless a protrusion is present.

The external oblique aponeurosis is now closed, carefully reconstituting the external inguinal ring in the normal position, using 2 interrupted No. 2 chronic catgut sutures at the pubic tubercle and completing the rest with a continuous suture, avoiding the ilio-inguinal nerve. A snug fit (little-finger size) of this ring is important, but tightness should be avoided.

The deep layer of the superficial fascia is sutured with interrupted No. 00 plain catgut. Absolute haemostasis is secured and the skin is closed with interrupted mattress sutures of silk. A gauze dressing and adhesive plaster is applied.

COMPLICATIONS

So far, no case of subsequent herniation (Spigelian type) through the transposition incisions has occurred and no cases of femoral hernia were seen following this operation.

Infected haematomata in the subcutaneous tissues of the wound occurred in 2 cases, but no recurrence has followed. Some dragging sensation in the wound has occurred in 3 cases; this has caused little disability. One patient had a small hydrocele, 5 had a varied degree of varicocele, and 1 had atrophy of the testicle. The mortality in this series was nil.

STRANGULATION

Eighteen cases of strangulation were operated on. In all the sac was opened; resection of small bowel was performed in 4 and appendicectomy in 2. In these cases the sac was resutured, invaginated, and transposed as described.

RECURRENTS

If recurrence is going to take place, it usually does so within a comparatively short time.

According to Page and Edwards (1943), and Edwards, 75% of recurrences appear in the first 12 months and 90% in the first 24 months. Erdmann (1923) reports that 74% of his recurrences took place in the first 12 months and 98.6% in the first 24 months. Judd found that 70% of his recurrences were noted in the first 6 months and 90% in the first 12 months.

Indirect Recurrences

There were 2 cases with indirect recurrences. Case 1 was that of an extremely obese 52-year-old patient who developed a combined hernia 8 months after his first operation. This was again repaired, after weight reduction, with no further recurrence. Case 2 was that of a 67-year-old patient, with severe chronic bronchitis, who developed a recurrent indirect hernia 6 months after operation. Re-operation has not yet been undertaken owing to an exacerbation of his chronic bronchitis and a subsequent attack of amoebic hepatitis.

Direct Hernias

In this series 4 cases of direct hernia followed the operation. Two were proved at re-operation, the third was controlled with a truss, and the fourth was only a slight bulge requiring no further treatment. No repair of the posterior wall was performed at the original operation, in accordance with a policy of not interfering with the posterior wall unless a hernial protrusion is present. For this reason these are not regarded as recurrences. McVay and Chapp state that a direct hernia, appearing years after the repair of a simple indirect hernia, is a brand new hernia and not a recurrence.

DISCUSSION

The development of the indirect inguinal hernia, congenital in origin, is dependent upon the protrusion of a viscous in the persistent processus vaginalis. Invagination, transposition and adequate removal of this part of the peritoneum, without additional 'repair', should therefore preserve the normal inguinal anatomy and function regardless of how stretched the internal ring appears to be at operation. The disposal of the sac by the technique

described removes it from the inguinal canal and places a barrier over the internal aspects of the internal ring. It is conceivable that the space between the peritoneum and the fascia transversalis which is left after displacement is filled with blood and serous fluid which later forms an adequate barrier to recurrence.

In this series, the youngest patient was 16 and the oldest 86, the average age being 51·6 years.

A point of some significance is that there were no recurrences following repair of 10 recurrent hernias using this technique. The initial operation had been done by other methods.

Both Marsden and Craig had no doubt that repair of the posterior wall, as is done in Bassini's operation, damages the mechanism controlling the internal ring, so aptly described by Sir Arthur Keith (Rains, Blunt).

Regarding damage to the inguinal canal, it is pertinent to ask whether those large indirect hernias seen so frequently some years back, are particularly common nowadays. Has the present system of free hospitalization in Britain helped to solve the problem? Patients do not seem to carry their ruptures with them for as long as they used to do. By coming for treatment earlier, less damage is done to the mechanism of the inguinal canal.

SUMMARY

A 6-year review of 164 cases of indirect inguinal hernia, using a modified Kocher repair, has been presented. The follow-up was 84% and the recurrence rate 1·2%.

No repair or approximation of the margins of the inguinal canal was performed. Using this method there is no interference with the shutter-like action of the inguinal muscles closing the canal (Blunt).

Four cases were found to have direct hernias after operation, 1 of which showed only a slight bulge just above

the pubic tubercle (unnoticed by the patient) but as no repair was performed on the posterior wall at the original operation for indirect hernia, these direct hernias are regarded as brand new hernias and not recurrences.

The commonly practised method of simple ligation and resection of the sac, without some sort of fixation, must be responsible for a certain number of recurrences. Bulging of the peritoneum as a factor in recurrence is completely eliminated by using this method of repair.

This conservative operation gave results as good as and better than many other methods.

These cases were under the care of Mr. G. F. G. Batchelor who introduced the operation to the West London Hospital and personally operated on many of the cases. I wish to thank the Records Officer and his staff for their great help.

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THE NURSE IN RELATION TO ANAESTHESIA

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During the development of anaesthesia one of the main problems has been the provision of adequate specialist services. In many parts of the world this problem is still by no means solved,¹ but we can at least begin to look forward to the time when all hospitals will have sufficient fully-trained anaesthetists on their staffs. As conditions improve in this way, however, a second problem arises—the provision of assistance for the anaesthetist himself. Sometimes a second anaesthetist has been employed for this purpose, sometimes a technician and sometimes a nurse. The present position in regard to each of these will be reviewed briefly below, and some suggestions for the future will be made.

Anaesthetists are still much less favoured than many of their colleagues with regard to assistance. The physician who works in the wards is traditionally entitled to the help of nurses who spare him from many simple, routine duties such as taking the temperature and pulse of his patients. To an even greater degree the surgeon expects to have nurses to help him; not just any student nurses

who happen to be at hand, but highly-trained and specialized theatre sisters who become members of the surgical team and to whom considerable responsibility is delegated.

It is uneconomical for a highly-trained and experienced specialist to devote a considerable proportion of his working time to cleaning and servicing apparatus, changing cylinders, washing syringes and so forth. Not only is it better from the point of view of economics for an assistant to perform such duties, but also, since they must otherwise distract the anaesthetist's attention from the more important aspects of his work, it is safer for the patient. Now that controlled ventilation is so commonly used, the anaesthetist's need for a second pair of hands is even more apparent. Not all anaesthetists have, or care to use, a mechanical respirator, so that whenever drugs have to be prepared for injection, or transfusions adjusted, the responsibility for ventilating the patient's lungs must be delegated to an assistant. Since these contingencies frequently arise at a particularly critical moment for the

patient, it is important that his ventilation be maintained in an efficient and harmless manner; nothing can be more worrying for the anaesthetist, at such a time, than a painful awareness of the fact that he is obliged to leave the patient's respiration in the hands of someone who is completely untrained. It is also in difficult and complicated situations of this kind that anaesthetic records can be most valuable, but the keeping of these must frequently go by the board for lack of an assistant.

All these are cogent enough reasons for accepting the fact that the anaesthetist requires some assistance; the nature and quality of this assistance must next be discussed.

PRESENT-DAY PRACTICE

At present there are 3 sources from which anaesthetists commonly obtain assistance—from a second anaesthetist, from a technician, or from a nurse.

The Second Anaesthetist

In postgraduate teaching centres there are trainee anaesthetists who derive considerable benefit from serving an 'apprenticeship' as assistants to established specialists. In these circumstances the problem of providing a second pair of hands is readily solved but unfortunately the system is open to abuse. It is quite unjustifiable to exploit juniors merely to fetch and carry for consultants; they must receive worth-while instruction at the same time. In some centres junior anaesthetists spend far too great a proportion of their training period as 'casual labourers' about the operating theatres, when they could far more profitably be engaged in watching their chiefs at work, doing reading and research, or studying their patients pre- and postoperatively. Although it is sometimes practicable, therefore, to provide the anaesthetist with assistance by making use of juniors this is by no means the complete answer to the problem. Furthermore, in non-teaching hospitals and less influential centres it is no more than a pipe-dream to suppose that adequate numbers of junior anaesthetists will be available.

Another important point that arises in this connection is that there are many situations in which a junior anaesthetist himself requires an assistant; e.g. when emergency surgery is being performed at night. This kind of surgery sometimes presents the most difficult problems in anaesthesia, yet often a junior anaesthetist is expected to take sole responsibility. He may have many tasks to perform in rapid succession in order to ensure his patient's safety and he may be seriously worried about his ability to cope with the situation. These are precisely the circumstances in which a second pair of hands should always be available; even a consultant, with his much greater experience and self-confidence, would almost invariably send for help when confronted with a similar type of case during the daytime!

The Technician

Many hospitals now employ trained operating theatre technicians who contribute materially to the efficiency of the whole surgical team. A clear distinction has to be made, however, between *theatre* technicians and *anaesthetics* technicians. A technician, who is expected to arrange the theatre equipment, adjust the light for the surgeon, mend the diathermy apparatus, and perform odd

jobs for several different people, is unlikely to be of any real value to the anaesthetist. When his services are urgently required he is too often busy elsewhere and he does not have the interests of the department of anaesthetics sufficiently at heart to be a worth-while assistant. Even when the technician's duties are confined solely to anaesthetics, there are still difficulties. Firstly, if the technician has no background of nursing experience there are objections, ethical and otherwise, to his being left alone with an unconscious patient or carrying out any anaesthetic procedure without strict supervision. Secondly, the technician works a 9-to-5 day and therefore does not attend the hospital at night. In practice this means that he is available during the 'easy' part of the day when there are usually enough pairs of hands without him, but when a single anaesthetist is left to complete the list in a hurry he is no longer to be found. The employment of technicians on these terms does nothing to help the junior anaesthetist with his emergency work.

The Nurse

Throughout the world nurses are employed in many different ways in relation to anaesthesia. Sometimes they work as fully trained 'anaesthetists', without supervision, while in other places only 2 or 3 weeks of practical work and 2 or 3 lectures are devoted to anaesthesia during the training period. More detailed lectures on anaesthesia and resuscitation are frequently reserved for trained nurses intending to become theatre sisters or technicians.

In the USA many hospitals employ nurses as anaesthetists. This practice is becoming less common and there is at present strong feeling against the employment of nurse anaesthetists throughout the North American continent. This should not, however, be regarded as a final condemnation of the system in all its forms. Historically, nurse anaesthetists in America were a necessity; for many years there was such a shortage of specialists that nurse anaesthetists had to be employed to work under the direct supervision and control of surgeons. There is no doubt that this practice is undesirable, but the employment of nurse anaesthetists under conditions in which supervision is available represents a different situation. The nurse-anaesthetist system in a fairly typical American medical centre may be summarized briefly as follows:

A trained nurse anaesthetist is allocated to each operating theatre. Each theatre has its own anaesthetic machine and it is the nurse's responsibility to ensure that this machine is in working order and tidy; at the beginning of each day's operating it is her duty to collect all the drugs, endotracheal tubes, transfusion sets, syringes and other small pieces of equipment that she is likely to need. As each patient arrives in the operating theatre the nurse anaesthetist checks his identity, attaches a sphygmomanometer cuff, measures the blood pressure and fills in the relevant information from the case sheet on a record card. She then informs the 'anesthesiologist' that she is ready to begin and he either supervises her while she induces anaesthesia, or induces anaesthesia himself. From that time onwards the nurse anaesthetist does not leave the patient until the conclusion of the operation; she charts the pulse and blood pressure at regular intervals, maintains anaesthesia according to the requirements of the operation and sends for the 'anesthesiologist' whenever

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she has a problem or anticipates trouble. At the end of the operation the 'anaesthesiologist' again inspects the patient and assigns him to the recovery room or the ward according to his condition. Each nurse anaesthetist has one day a week off duty and does not work at weekends; apart from this she is expected to be in her operating theatre whenever operations are being performed, except for emergency cases. With regard to emergency and weekend duties, the nurse anaesthetists take turns to do one week at a time during which they are on call every night and throughout the weekend; during this week they have no duties in the daytime.

The success of this system depends upon the quality of the training received by the nurse anaesthetists and upon the efficiency of their supervision. It is a system which can easily be abused if supervision is casual and ineffective. On the other hand, it is a system which, properly managed, can provide a country which has insufficient trained anaesthetists with a reasonably safe and efficient anaesthetic service. One of the best features of the system is that the nurses become true members of the surgical team with duties and responsibilities similar to those of the medical staff. Their hours of work are divorced from the shift system which applies to the other hospital nurses and they are liable for emergency duties.

In Denmark and other Scandinavian countries nurse anaesthetists are still extensively employed but, unlike the position in the United States, there is no generalized movement towards their abolition. These nurses are trained to maintain the patient's general condition, perform controlled respiration and anticipate trouble. By performing these tasks they free the anaesthetist's hands and allow him more time for other duties, but whereas the American anaesthetic specialist who works with nurses devotes his extra time to the supervision of other operating theatres, the Scandinavian anaesthetist tends to spend his extra time supervising the resuscitation of shocked patients and participating in postoperative management.

In Oxford, posts are available for trained nurses to work with the anaesthetics department for 6 months. During this time the nurses work under the supervision of a permanent sister and receive lectures from members of the Nuffield Department of Anaesthetics. Although these nurses are encouraged to obtain experience in minor procedures, e.g. the administration of simple anaesthetics and the insertion of intravenous needles, their main duties are concerned with the upkeep of the anaesthetic room and equipment. Many nurses take a 6 months' appointment of this kind as a preliminary to becoming theatre sisters, since it gives them a worth-while insight into those parts of their duties which are concerned with anaesthesia. In Newcastle, also, trained nurses are accepted by the Department of Anaesthetics, where they obtain rather similar experience.

COMMENTS ON THE PRESENT SITUATION

A mistake that has been made in many countries, usually through sheer necessity, has been to delegate the responsibility for training nurse anaesthetists either to surgeons or to other nurse anaesthetists. Most of the shortcomings of present-day nurse anaesthesia are traceable to this source, and it is self-evident that if nurses are to take any measure of responsibility in connection with anaes-

thesia they should be trained by highly experienced specialists. Another assumption that has almost invariably been made is that it is essential for a nurse to complete a full general training before specializing in anaesthetics. Work in the operating theatre requires a different temperament and an entirely different set of interests from work in the wards and if a girl intends to make her career in connection with anaesthesia she should not be obliged to spend too much time on largely irrelevant ward work. Many nurses who have had a full general training dislike theatre work because they say that there is no 'real nursing' in it. Of course there is not, and the fact that a girl is competent at making beds and taking temperatures is no criterion of her ability to inflate the lungs or set up a transfusion. In any case there is a shortage of good ward nurses, and girls who have been fully trained for such duties should not be 'wasted' in the operating theatre. As an assistant, the anaesthetist really requires a person with some knowledge of nursing, some technical ability and some insight into anaesthetic matters; above all he requires somebody who is prepared to regard anaesthesia as a specialized career in the way that physiotherapy and radiography are regarded. Similar arguments have been advanced with regard to operating-theatre sisters,²³ and there is much to recommend these arguments. It is obviously necessary for all junior nurses to acquire some experience of the problems of surgery and anaesthesia, just as all medical students must, but it is ridiculous to depend on such people for the running of specialized services.

If a technician is employed for anaesthetic duties he is liable to expect the same hours of work as technicians in other trades. In the case of nurses, on the other hand, hours of work are likely to be determined by the hospital system. Each of these alternatives is thoroughly undesirable. Nurses employed for anaesthetic duties cannot conveniently work the same hours as other hospital nurses. They should be available for emergency duties, they should fit their hours of work to those of the anaesthetists, and it should be clearly understood that they are not 'general helps' in the theatre; it is extremely irritating to the anaesthetist if his nurse leaves for lunch or some other statutory break at a critical moment, or if she is so busy tying the tapes of the surgeon's gown that she cannot hand him a suction catheter in order to save a patient's life. The situation becomes even more ludicrous if, as sometimes happens, the nurse has to change from theatre dress into her full uniform, complete with cap and cuffs every time she goes to have a cup of tea!

SUGGESTIONS FOR THE FUTURE

It is not our intention to lay down hard and fast rules for the future. The precise way in which nurses and others are used in connection with anaesthesia must clearly be related to local conditions, but it is fairly safe to make certain general recommendations. Firstly, it must be clearly understood that it is no part of our present intention to advocate the employment of nurses as substitutes for specialist anaesthetists. In so far as nurses are concerned we are interested only in the possibility of their employment as assistants who work under the supervision of specialist anaesthetists and who are answerable to them.

Many of the anomalies in the rôles of the technician and the nurse in relation to anaesthesia can be obviated by acknowledging the desirability of a 'nurse technician'. Such a person should have some background of nursing experience but should also be freed from many of the administrative restrictions of nursing in order to enable her to pursue a specialized career. Some kind of certificate should be obtainable which entitles the nurse-technician to claim the status of a trained person, or there should be an examination she can pass, and once this level of competence has been attained remuneration should be sufficient to make long-term employment an attractive proposition. This type of specialized employment as a nurse-technician might well appeal to many male nurses, who often make excellent assistants for the anaesthetist.

Although it is not necessary for a nurse to complete a full general training before taking up work in anaesthetics, at least one year of general nursing should be regarded as essential. In this way the potential anaesthetics nurse-technician would be subjected to the same processes of selection as apply to nurses in general, and people with an insufficient standard of education would be eliminated at the outset. Also, a year of general nursing is an excellent means of acquiring a suitable background knowledge of the working and organization of a hospital while at the same time becoming familiar with medical terminology and practice.

If a nurse decides to take up work in anaesthesia her training should become the responsibility of the hospital department of anaesthetics, and her training should be organized and directed by the specialists with whom she will be working. She should attend general lectures on the theory and practice of anaesthetics; these should be informal affairs with plenty of opportunity for asking questions and clearing up elementary doubts. As far as practical work is concerned, she should be taught how to maintain and operate anaesthetic apparatus and how to take care of equipment. She should learn how to measure the blood pressure with a Tycos manometer, how to maintain the airway and how to recognize and correct respiratory obstruction. In this way she will become competent in the management of the unconscious patient; this will always be her first duty. She should also practise inserting intravenous needles and setting up transfusions, and the dangers related to the transfusion of fluids under pressure should be explained to her. She should be able to pass endotracheal tubes and carry out intermittent positive-pressure controlled ventilation in a safe and effective manner. Although it will not normally

be necessary for the nurse-technician to perform intubation or deal with transfusions in the operating theatre, since a specialist will be available, it is invaluable to her to have knowledge of these techniques in case of emergency.

As far as work in the operating theatres is concerned, the objects of training nurse-technicians should be firstly, to enable them to prepare apparatus and equipment and ensure that it is in proper working order, and secondly, to enable them to continue an anaesthetic if the anaesthetist is unavoidably called away and to assist him when there are several jobs to be done at once.

Hospital design is tending more and more to the inclusion of recovery rooms or 'intensive therapy units' within the operating suite. Such units provide the obvious place for the management of patients with severe shock, respiratory insufficiency, and other complications related to the practice of anaesthesia. All the necessary facilities can be at hand and trained staff can be available. Here the nurse-technician could put her specialized training to good use in the management of shocked and unconscious patients, the supervision and aspiration of tracheostomies and the specialized attention that is required by frank or impending respiratory insufficiency. It is interesting to note that in many hospitals where recovery rooms have been established their advantages have become so obvious that patients are kept in them for increasing periods of time. Instead of remaining in the recovery room for only a few hours after surgery many patients, especially after cardiac and thoracic operations, are retained for several days. This means, of course, that larger units are required with corresponding increases in specially-trained staff. In the hospitals of the future anaesthetics nurse-technicians will be invaluable in this field of employment.

SUMMARY

In the interests of the patient there are many occasions when it is important for the anaesthetist to have an assistant. At the present time anaesthetists are less favoured than many of their colleagues in this respect; the quality of their assistance varies from the highly-trained nurse-anaesthetists of some American centres to virtually nothing at all in other parts of the world.

A plea is made for the organized training of 'nurse-technicians' as anaesthetics assistants, with some suggestions how this training should be carried out.

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THE RECOVERY ROOM

PETER HORRIGAN, M.B., CH.B., M.MED.(ANAESTH.) (CAPE TOWN), Department of Anaesthesia, Groote Schuur Hospital, Cape Town

For some years it has been realized that every large operating-theatre suite should be equipped with a post-operative recovery room, in which patients can be kept after their operations until they are completely conscious and fit to be returned to the ward. Such rooms increase the safety of the patient and thus lower the morbidity

and mortality associated with surgery. This has been well shown at the Queen Victoria Hospital, East Grinstead, Sussex, where the operative mortality fell from 1 in 1,300 to 1 in 3,000, following the establishment of a recovery room.¹

The executive committee of the South African Society

of Anaesthetists (M.A.S.A.) recently pointed out that there is a need for such recovery rooms in South African hospitals.² It seems, therefore, that efforts should be made to investigate this need, and to meet it where possible. It would appear to be neither necessary nor economical to provide recovery rooms for every operating-theatre suite in our hospitals. Where very few operations are performed daily, the anaesthetist should, if possible, keep the patient on the operating table until complete consciousness has been regained. If time does not permit this, specially-trained nurses should be available, whose duty it is to accompany patients back to the wards (usually a short journey in a small hospital), and to stay with them during the immediate postoperative period.

How many of our hospitals, then, should be equipped with recovery rooms? This question may be answered best by considering the number of operations done *per annum* in each hospital. Excluding the smaller mission and private hospitals, and excluding all maternity institutions, there are 298 hospitals in the Union of South Africa and South West Africa. Of these, there are less than 50 where more than 2,000 operations are performed annually, and in only 16 hospitals does the annual number reach the 5,000 mark.³ A further important consideration is that approximately 71% of the operations performed are minor surgical procedures. (This figure was arrived at after analysis of a total of 49,294 operations performed at 5 large Cape Town hospitals during the years 1958 and 1959.) Now, for the most part, patients undergoing minor surgical operations need no special care once they have recovered consciousness; in any event, many of them are given local, not general, anaesthetics. Thus, in a hospital in which 2,000 operations are performed *per annum*, only 380 patients, i.e. less than 12 a week, will require special attention after regaining consciousness.

A study of these figures suggests that it would not be practical to establish recovery rooms in hospitals in which less than 5,000 operations are performed *per annum*. As has been stated, there are only 16 such hospitals in South Africa.

AIMS AND ADVANTAGES

The establishment of a recovery room, first and foremost, obviates the dangers of transporting a recently-anaesthetized patient, who is not completely conscious, from the operating theatre to the ward. As a rule, respiratory obstruction is fairly easily remedied when the attendant is experienced and the proper equipment is at hand. During transport, however, in the lift or corridor, the semi-conscious patient who vomits, or whose airway becomes obstructed in some other way, is immediately in grave danger. If, however, the patient is wheeled from the operating theatre to an adjacent recovery room, he can be kept under the closest supervision by specially-trained nursing staff, with both surgeon and anaesthetist near by. In addition, any equipment which might possibly be needed is close at hand, so that valuable minutes need not be lost in an emergency.

In many instances, where minor surgery has been performed, only a few minutes may be necessary before the patient can be safely taken to the ward. For such cases the corridor outside the operating theatre can well be

used as a recovery 'room', although it certainly does no harm to allow the patient to spend those few minutes in the actual recovery room. Indeed, many consider that all postoperative patients should go there for assessment, whatever the circumstances.⁴

After major surgery and prolonged anaesthesia the patient is kept for much longer in the recovery room. The actual time may vary from a few hours to a few days, depending upon the patient's condition and the nature of the operation. During that time, however, any complication that develops, whether it be respiratory obstruction, anoxia due to other causes, shock, haemorrhage, atelectasis, or even cardiac arrest, can be dealt with at once by trained personnel. The advantages to all concerned, especially to the patient, are thus indisputable.

On the other hand, the duty of caring for unconscious or surgically-shocked patients falls away in the surgical wards. This may not seem to be much of an advantage where very few operations are performed, but in busy wards, where each patient returning from the theatre immobilizes a nurse for some time, the advantage is obvious. The objection that the recovery room deprives the student nurse of training in the care of postoperative patients can, of course, be overcome by having each nurse work in the recovery room itself for at least 1 or 2 weeks.

The patient should be more than satisfied with the arrangement if it is explained to him that, for his own safety, he will not return to the ward for a while after his operation. Those awaiting operation are spared the sometimes upsetting sight of a fellow patient just returned from the operating theatre,² and when an operation is performed at night the whole ward is no longer awakened by the recovering patient and his attendants.

DESIGN AND EQUIPMENT

Precise details concerning the design of recovery rooms will not be discussed here. Mention will merely be made of certain criteria which should be fulfilled as far as possible.

The recovery room must be adjacent to the theatre suite. In very large hospitals, where there are numerous operating theatres, more than 1 recovery room may be necessary, although it is often possible to have 1 recovery room serving 2 or 3 theatre suites.

The size of the room and the number of beds both depend upon the number of operations performed daily, and upon the average time each patient occupies a bed. If the recovery room is used as an intensive therapy room, where all major surgical cases are kept for 2 or 3 days, then there will obviously have to be more beds than if every patient is transferred to the surgical ward as soon as complete consciousness is regained.

Equipping the recovery room is likely to be expensive, but it is undeniable that the expenditure is quite justifiable if it increases the safety of the patient. Once established, the maintenance costs of the recovery room are certainly not uneconomical.⁵

Beds must be capable of being tilted into the head-up or head-down positions, and should have side-rails and rubber castors. Individual oxygen- and suction-outlets must be located at each bedside; if they are wall fixtures,

with piping from a central source, much floor space will be saved.⁶ There must, however, be 1 portable suction unit and an oxygen cylinder available, in case of failure of the system. Suction catheters, a mouth gag and a sphygmomanometer should also be available at every bed.

Other equipment to be kept in the recovery room at all times includes: box-wood wedges (for opening clenched jaws); oropharyngeal airways; laryngoscopes of all sizes; endotracheal tubes and connections; positive-pressure respiration apparatus (e.g. the 'ambu' resuscitator, or the Oxford inflating bellows); one or more oxygen tents; drugs, such as stimulants, sedatives, etc.; sterile syringes and needles; intravenous infusion sets; sterile tracheotomy drum or pack; and sterile cardiac-massage drum or pack.

ADMINISTRATION AND PERSONNEL

The recovery room should be the responsibility of an anaesthetist, in close cooperation with the surgeon and, when necessary, with a physician. A member of the medical staff must be on the spot at all times, but the final assessment before returning the patient to the ward should be made by the anaesthetist. Resident surgical staff should retain contact with their patients in the recovery room, so that a most important part of their training is not lost.²

The nursing staff should be headed by a trained nurse, experienced in the care of unconscious patients and of patients recovering from recent surgery. The head nurse should be permanent if possible, but the remainder of her staff, both trained and student, can be rotated through the department if necessary. There must, however, always be at least 1 trained nurse on duty in the recovery room.

Record-keeping must be of the highest standard, for

it is in the early postoperative period that so much information can be gleaned from properly-kept records.

PROCEDURE

On admission to the recovery room each patient is examined fully, with particular reference to: the airway; respiration; the skin (colour, sweating and capillary-refill time); the pulse and blood pressure; the state of reactivity; and dressings, drains, gastric tubes, etc. All patients who are not completely conscious should be placed in the lateral-recumbent or 'tonsil' position.

When the patient is to be discharged, the above-mentioned points are all rechecked and a record made of the condition on leaving the recovery room. With careful attention to detail these methods are bound to contribute much towards the safety of the patient. Indeed, it can be said with certainty that, although a recovery room costs money, it often saves nurses and it sometimes saves lives.

SUMMARY

The aims and advantages of postoperative recovery rooms are discussed. A brief description is given of the principles to be followed in the establishment of a recovery room, and of the management thereof. It is suggested that steps should be taken to meet the demand for such units in the larger South African hospitals.

I wish to thank Dr. C. S. Jones, Head of the Department of Anaesthesia, University of Cape Town, for his helpful advice.

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ISOLATED NON-PARASITIC CYSTS OF THE LIVER IN NEWBORN INFANTS

REVIEW AND CASE REPORT

I. M. MARKS, M.B., Ch.B. (CAPE TOWN), formerly Registrar, Department of Pathology, University of Cape Town*

Reports in the literature have suggested that isolated non-parasitic cysts of the liver, polycystic disease of the liver and kidney excluded, are uncommon. Detailed reviews have been presented by Munro¹⁰ and Geist,⁵ who collected 193 cases from the literature. Since then numerous reports have appeared, including that of Desser and Smith,⁴ who found 8 more cases in hospital records. Warren and Polk,¹¹ Morgenstern⁹ and others have also added to the literature. The records of the Department of Pathology, University of Cape Town, show at least 5 more examples in adults found incidentally on postmortem examination. It would seem that the overall incidence of these cysts is higher than would appear from the numbers reported in earlier years.

These cysts have been reported less commonly in the paediatric age-group. Desser and Smith⁴ found 31 examples in the literature in children under 13 years of age, and

the 8 cysts they themselves reported were all in children. Of these, 3 were in neonates. One of these was that reported by Bagot (1892).¹ It was a large cyst of the liver in an infant with a papular eruption of syphilitic character and it caused dystocia. Muller, quoted by Bagot, noted in an infant a 'lymphatic tumour of the liver' weighing 4 lb., which also obstructed labour. Moll⁶ (quoted by Geist) described a cyst of the right lobe of the liver containing 110 ml. of fluid in a neonate. Thus it can be seen that these cysts have been reported very rarely in neonates, only 6 being on record. The following additional case is therefore of some interest, presenting with the unusual combination of a liver cyst with anaplastic giant cells of the foetal adrenal cortex.

CASE REPORT

History

The mother, a coloured patient (i.e. of mixed White and

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non-White ancestry) was admitted in labour at 36 weeks with pre-eclamptic toxæmia. Soon after delivery postpartum haemorrhage necessitated manual removal of the placenta; the mother died half-an-hour later.

The infant was limp and cyanosed at birth, and was given oxygen. A large flabby abdomen was noted. The infant died two-and-a-half hours after birth.

Findings at Autopsy of Infant

The infant's weight was 3.044 g. and the length 49 cm. The abdomen was enlarged and flabby. There was a large caput succedaneum, partial bilateral talipes equinovarus and short metatarsals of the little toes.

Liver cyst. The cause of the enlarged abdomen was a huge laxly-filled, reddish-brown cyst, 13 cm. in diameter, hanging from the posterior surface of the right lobe of the liver (Fig. 1). It lay anterior to the intestine, its wall being

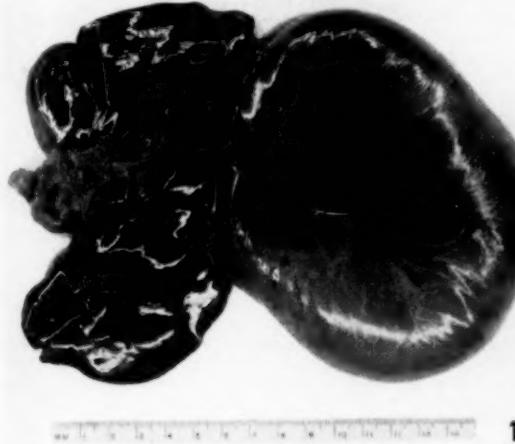


Fig. 1. Liver with the attached cyst.

contiguous with that of the fundus of the gallbladder. It weighed 300 g., its bulk being nearly twice that of the liver, which weighed 154 g. A leash of blood vessels ran over the surface of the cyst from its hepatic attachment. Its base was a triangular area of the posterior surface of the liver above the fundus of the gallbladder. A small amount of liver tissue was present in that part of the wall of the cyst which was in contact with the liver. The cyst, which was unicocular, contained 285 ml. of yellow-brown fluid as well as an off-white coagulum which had been visible through the wall of the cyst. After the fluid had been removed, the cyst-wall was seen to be smooth, reddish and translucent.

Cyst fluid. Chemical estimation of the fluid was as follows: Van den Berg, negative; bilirubin, 1.2 mg. per 100 ml. (mainly indirect); cholesterol, 26 mg. per 100 ml.; alkaline phosphatase, 2.7 Bodansky units; proteins, albumin, 2.0 g. per 100 ml.; globulin, 4.1 g. per 100 ml. No crystals were seen in the fluid on microscopy.

Other organs. The liver, apart from the cyst, was normal, as were the gallbladder and bile ducts. The adrenals (9 g.) had a normal foetal appearance. The thyroid showed a marked generalized enlargement—2-3 times normal, but unfortunately was not weighed. The other organs showed no special features.

Histology

At the cyst's origin the liver substance tailed off gradually into the cyst wall with no epithelial lining. The wall consisted of 3 ill-defined layers. In the middle there was loose connective tissue containing scanty bile ducts and many sinusoids. The outer and inner layers consisted of scanty flattened cells in connective tissue. The wall of the fundus of the gallbladder was contiguous microscopically with that of the cyst in one small area. The liver elsewhere showed very active extra-

medullary haemopoiesis, with some increase in portal connective tissue.

The thyroid showed absent colloid and increased collagenous tissue intralobularly and between the acini. In the pancreas the islets of Langerhans were prominent and some extra-medullary haemopoiesis was present.

The adrenal gland (only 1 was sectioned for histology) contained striking anaplastic giant cells (Fig. 2). There were

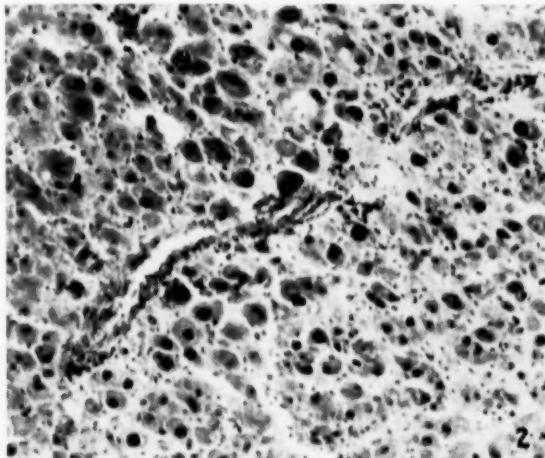


Fig. 2. High-power view of the foetal adrenal cortex showing numerous giant cells.

numerous giant cells in most of the foetal cortex though none was seen in the definitive cortex. They were mostly in the inner areas of the foetal cortex and showed pronounced nuclear and cytoplasmic anaplasia. In these areas there were also numerous normal cells. The giant cells were large, up to 6 times the diameter of normal cells, and were distributed in sheets, clumps and isolated individual cells. The nuclei were hyperchromatic, with well-defined borders, and their chromatin was distributed in a granular and linear network. Their shape was usually round or oval, often irregular. The nuclei were large in relation to the cytoplasm. A few cells had up to 5 nuclei, and many of the nuclei contained slightly eosinophilic inclusions up to half the size of the nucleus. The cytoplasm was similar to that of the normal cells, but in some there were numerous clear vacuoles, most marked round the nucleus. The small, thin, definitive cortex contained no lipid. Some extramedullary haemopoiesis was noted in the innermost portion of the gland.

The other organs were normal on histological examination.

DISCUSSION

Origin of the Cyst

The site of origin of the cyst is speculative. It may have originated in the liver capsule, or in hepatic tissue beneath the capsule, growth being in the line of least resistance outwards, the huge size of the cyst causing great distension and thinning of the wall. This may explain the scanty bile ducts and absence of liver cells in the wall compared with those noted in other cases. The liver capsule surrounded the cyst and therefore, though the fundus of the gallbladder was contiguous with the cyst wall, the gallbladder could not have given rise to the cyst.

The histogenesis of the cyst may have been from an intrahepatic bile duct, the bilirubin in the cyst fluid being compatible with this possibility. Other structures from which it could have arisen are lymphatic, venous, arterial or capillary vascular channels, but the simple structure of

the cyst does not favour this origin. The first suggestion seems the most likely.

The absence of any epithelial lining is worthy of comment. Very little active secretion could have occurred, yet the laxly-distended cyst contained 285 ml. of fluid.

These cysts so far have been of no clinical importance in neonates except when of great size, when they have caused obstructed labour.

Association with Giant Cells in the Foetal Adrenal Cortex

Giant cells were first noted by Kampmeier⁶ in the adrenal cortex of foetuses aged 2-4 months. In recent years they have been studied by several authors.^{5,7} They appear to be related to cells found in the adrenal glands of normal foetuses. Under certain circumstances these cells remain conspicuous until a few months after birth, and very rarely may be present many years later.⁷ No effect can yet be ascribed to them, and there is no evidence in favour of a neoplastic or viral origin of these cells. Their fate is a mystery.

They have not hitherto been associated with a cyst of

the liver. The occurrence of both these conditions in this case is thought to be purely coincidental.

SUMMARY

The literature on isolated non-parasitic cysts of the liver is briefly reviewed, the rarity of reports of these cysts in neonates being noted. An additional case is described in a neonate, where the unusual combination of a liver cyst with anaplastic giant cells in the foetal adrenal cortex was found. The combination is thought to be coincidental.

I should like to thank Prof. J. G. Thomson and Dr. C. J. Uys of the Department of Pathology, University of Cape Town, for their helpful advice, and Dr. M. Berman for the photographs.

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LIVE POLIOVIRUS VACCINATION CAMPAIGN

A campaign has recently been launched in the main centres of South Africa to vaccinate individuals in susceptible age groups with attenuated live poliovirus. This follows decisions taken at the Fifth International Poliomyelitis Congress held in Copenhagen in July this year.

The vaccine which is being used is the Sabin attenuated live virus, which has already been used to vaccinate more than 80 million people in various countries. The Congress was satisfied that this vaccine is safe and effective and it is expected that it will offer a life-long immunity.

At present only Type I vaccine is being released by the Poliomyelitis Research Foundation. Second and third feedings of Types II, III will be available in April and May 1961. The age groups considered susceptible are all Europeans up to the age of 30, and all non-Europeans up to school-leaving age. The difference lies in the natural immunity which has been shown to occur at an earlier age in the non-European

population. Should enough vaccine be available, persons outside these age limits will be vaccinated.

The vaccine is being supplied to local authority health departments in bulk. It requires most careful deep-freeze refrigeration and handling and will be administered in sweets to all age groups over 1 year (children under 1 year of age will receive syrup).

Because of the difficulties of handling, it is not being issued to general practitioners in the present campaign. All practitioners are asked, however, to encourage their patients to avail themselves of the opportunity of receiving this vaccine if they fall within the age groups to be vaccinated.

In the meantime, the public health authorities advise that the use of the Salk formalin-inactivated vaccine be continued, at least until Types II and III of the oral live vaccine become available.

ASSOCIATION NEWS : VERENIGINGSNUUS

RAILWAY MEDICAL OFFICERS' GROUP (M.A.S.A.)

NOTICE OF ANNUAL GENERAL MEETING

Notice is hereby given that the Annual General Meeting of the RMO Group will be held at Medical House, Esselen Street, Johannesburg, on Wednesday, 16 November at 2 p.m. sharp.

Agenda

1. Minutes of the last Annual General Meeting (circularized).
2. Matters arising out of minutes and confirmation of minutes.
3. Annual Report of the Hon. Secretary-Treasurer.
4. The Chairman's report on negotiations with the Central Sick Fund Board.
5. To receive and adopt Audited Statements of Account for period 9 September 1959 - 30 September 1960.
6. Office bearers of the Group for year 1960 - 1961.
7. Resolutions from Branch Sub-Groups.
8. General.

M. Cohen

Hon. Secretary-Treasurer

66 Judith Road
Emmarentia
Johannesburg
15 October 1960

SPOORWEGDOKTERSGROEP (M.V.S.A.)

KENNISGEWING VAN ALGEMENE JAARVERGADERING

Kennis geskied hierby dat die Algemene Jaarvergadering van die Spoorwegdoktersgroep te Mediesegebou, Esselenstraat, Johannesburg, op Woensdag 16 November 1960 om 2 nm. presies gehou sal word.

Agenda

1. Notule van die vorige Algemene Jaarvergadering (uitgestuur).
2. Sake wat spruij uit die notule en bekragtiging van notule.
3. Jaarlikse verslag van die Eresekretaris-Tesourier.
4. Voorsitter se verslag van onderhandelinge met die Sentrale Siekefondsaad.
5. Aanbieding en aanvaarding van ge-ouditeerde Rekeningstate vir die tydperk 9 September 1959 - 30 September 1960.
6. Ampsdraers van die Groep vir die jaar 1960 - 1961.
7. Besluite van Tak-Sub-Groepe.
8. Algemeen.

Judithweg 66
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15 Oktober 1960

M. Cohen
Eresekretaris-Tesourier

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PHARMACEUTICAL NEWS : FARMASEUTIESE NUUS

NEW MEDICAL FILM

SKF Laboratories have available on loan, without charge, a film entitled 'Human gastric function', which is intended for showing to professional audiences only. It is a 16 mm. sound film in colour and the running time is 18 minutes.

In this teaching film Dr. Stewart Wolf, M.D., Head of the Department of Medicine of the University of Oklahoma, reports on an experimental study of 'Tom', a unique patient widely known in medical circles. 'Tom' had an accident in early childhood which resulted in an extensive gastric fistula. The fistula permitted examination of the stomach mucosa, secretory action, and gastric motility, under varying conditions. These studies, conducted over several years, gave the investigators new insight into the stomach's complex responses to different psychological states and stresses. The first portion of the study is carried out in collaboration with Dr. Harold G. Wolff, of Cornell University Medical College, New York Hospital. The final phases of the research were performed at

the Oklahoma Medical Research Foundation in 1957.

Bookings for this film may be arranged through local SKF representatives or by writing to SKF Laboratories, P.O. Box 38, Isando, Transvaal. If possible, 4 weeks' prior notice and an alternative showing date of at least 1 month after the preferred date should be given.

WELLCOME TRUST NEW MEMBER

Prof. John McMichael, M.D., F.R.C.P., F.R.S., who holds the Chair of Medicine in the University of London at the Postgraduate Medical School, Hammersmith, has been appointed a Trustee of the Wellcome Trust in place of Sir Henry Dale, O.M., G.B.E., F.R.C.P., F.R.S., who retired from the Trusteeship in July 1960, and was succeeded as Chairman by the Rt. Hon. the Lord Piercy, C.B.E. Professor McMichael's appointment became effective on 10 October 1960. Sir Henry Dale will continue to serve the Trust in an advisory capacity as scientific consultant.

PASSING EVENTS : IN DIE VERBYGAAN

Dr. Leslie E. Whitfield, M.B., B.Ch. (Rand), F.C.O. and G. (S.A.), formerly Senior Medical Officer and Lecturer in Obstetrics and Gynaecology at the King Edward VIII Hospital and the Medical School of the University of Natal, Durban, has commenced practice as a gynaecologist and obstetrician at 304 - 305 County Permanent Building, Church Street, Pietermaritzburg. Telephones: rooms 21286, residence 24188.

Dr. Leslie E. Whitfield, M.B., B.Ch. (Rand), L.K.V. en G. (S.A.), voorheen Senior Mediese Beampte in Lektor in Verloskunde en Ginekologie by die Koning Edward VIII Hospitaal en die Mediese Skool van die Universiteit van Natal, Durban, het nou begin praktiseer as verloskundige en ginekoloog te County Permanent gebou 304 - 305, Kerkstraat, Pietermaritzburg. Telefone: Sprekkamer 21286, woning 24188.

1960 M. R. Drennan Lecture. Prof. Alexander Galloway, Head of the Department of Anatomy and Dean of the Medical Faculty at Makerere College in Kampala, Uganda, will deliver the 1960 M. R. Drennan Lecture on 'The growth of medical education in East Africa' in the Physiology Lecture Theatre, Medical School, Observatory, Cape, on Friday 18 November, at 8.15 p.m. Admission is free and all members of the Association and their friends are welcome.

South African Cancer Bulletin. Medical practitioners who do not already receive the South African Cancer Bulletin and who wish to be put on the mailing list for this quarterly publication, should send a request to have their names placed on the mailing list to: South African Cancer Bulletin, P.O. Box 1010, Johannesburg. All addresses should be typewritten or printed clearly in block capitals.

This Bulletin is issued without charge to members of the medical profession.

Dr. Harry Maisel, who is at present a member of the Department of Anatomy, McGill University, Montreal, Canada, has recently been awarded the M.Sc. degree by that University for his experimental work on the immuno-embryology of the lens.

South African National Tuberculosis Association—New National Chairman. Dr. J. J. du Pré le Roux, who recently retired from the post of Secretary for Health, was elected National Chairman at the Twelfth Annual General Meeting of SANTA.

Members are reminded that they should notify any change of address to the Secretary of the Medical Association of South Africa at P.O. Box 643, Cape Town, as well as to the Registrar of the South African Medical and Dental Council.

P.O. Box 205, Pretoria. Failure to advise the Association will result in non-delivery of the *Journal*. This applies to members proceeding overseas as well as those who change their addresses within the Union.

University of Cape Town and Association of Surgeons of South Africa (M.A.S.A.), Joint Lectures. The next lecture in this series will be held on Wednesday 9 November at 5.30 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Mr. W. Roberts will speak on 'Multiple injuries'. All members of the Medical Association are welcome to attend this lecture.

South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 14 November at 5.10 p.m. in the Institute Lecture Theatre. Mr. D. H. S. Davis, Chief, Medical Ecology Centre, will speak on 'Medical geography; mapping disease distributions'.

Medical Art Exhibition, Cape Town. Members of the Cape Western Branches of both the Medical Association and the Dental Association are asked to note that the Cape Town Medical Art Society will hold an exhibition on 12 December in the South African Association of Arts Gallery (large), Argus Building, Burg Street, Cape Town. The exhibition will be opened at 5.30 p.m. and all members of both Associations are cordially invited to attend.

The organizers of the exhibition would welcome examples of their own paintings, drawings, sculpture, ceramics, etc., from doctors or dentists residing in or near Cape Town. Not more than 6 exhibits should be handed to the curator of the gallery between 1 and 10 December. Typewritten labels should be attached to exhibits giving (in capitals) the subject and name of the artist.

Would those practitioners who would like to exhibit, and who have not already informed the organizers of their intention, kindly communicate with Dr. H. T. van Diggelen, 908 Medical Centre, Cape Town, telephone 3-4429, as soon as possible.

Southern Transvaal Branch (M.A.S.A.). The monthly general meeting of this Branch will be held at Medical House, 5 Esselen Street, Hospital Hill, Johannesburg, on Tuesday 15 November at 8.15 p.m. The following films will be shown: (1) The metisteroids in rheumatoid arthritis (25 min.). (2) Clinical management of auto-immune haemotologic disorders (35 min.), and (3) Elective rhinoplasty (28 min.).

43rd MEDICAL CONGRESS (M.A.S.A.), CAPE TOWN, 24 - 30 SEPTEMBER 1961 : 43ste MEDIESE KONGRES (M.V.S.A.), KAAPSTAD, 24 - 30 SEPTEMBER 1961

WETENSKAPLIKE UITSTALLINGS

'n Omsendbrief van die Voorsitter van die Sub-Komitee vir Wetenskaplike Uitstellings word hier weergegee ter inligting van lede van die Vereniging:

,Dit is die voorname van die Organiserende Komitee om 'n wetenskaplike uitstalling te reël in aansluiting by die verrigtinge van die kongres. Ons voel dat dit 'n ongeëwenaarde geleentheid sal bied vir die demonstrasie van wetenskaplike navorsing en ander werk wat tans in die Unie onderneem word, nie alleen deur offisiële liggame en ondersteunde navorsingseenhede en groepe nie, maar ook deur individuele dokters en wetenskaplikes.

,Die benadering van hierdie uitstalling sal so wyd as moontlik wees en sal die volgende insluit: antropologie en genetika, sielkunde en industriële toets vir geskiktheid, openbare gesondheid en sanitasie, die mediese toepassing van atoomkrag, voeding, voedingsteknologie en kwaliteitsbeheer, terapeutiese stowwe, produksie en beheer, gesondheidsondergrig en immunitetsmetodes, veearsykundige werk en die soonoos, hospitaalbepanning en die administrasie van mediese diens, die geskiedenis van medisyne en die instrumente en stamgewoontes, asook die hele gebied van die mediese navorsing. Algemene praktisyne word ingesluit.

,Een deel van die uitstalling sal 'n bioskoop wees wat 'n daaglike program van mediese- en wetenskaplike films sal vertoon, kleurskyfies, ens. Daar word gehoop dat geslote beeldradio ingesluit sal word.

,Hierdie voorlopige omsendbrief word aan so veel organisasies en afsonderlike persone moontlik gestuur wat moontlik wil deelneem aan die uitstalling. Ten einde die beplannings-komitee te help, sal dit waardeer word indien voorname uitstallers sal aandui—so spoedig moontlik—of hulle of hulle organisasies willig is om deel te neem aan die uitstalling en, indien wel, dui asseblief kortliks aan:

,1. Aard en titel van die uitstalling.
2. Of dit (a) staties sal wees, of (b) 'n werkende demonstrasie, of (c) film- of kleurskyfie-projeksie.

3. By benadering wat (a) die lengte, of (b) die vierkant-voetsmeting of uitstallingsruimte benodig, sal wees.

4. Indien krag, water, dreinering, of gas verlang word.
5. Indien films of skyties vertoon sal word, die tyd wat dit ongeveer in beslag sal neem.

,Uit hierdie inligting sal voorlopige planne opgestel word en 'n opvolgingsbrief vroeg gedurende 1961 sal handel oor die besonderhede, planne, reellings vir demonstrateurs, aflewing en oprigting, versekering, ens.

H. O. Hofmeyr
Voorsitter, Sub-Komitee vir
Wetenskaplike Uitstellings

Mediese Huis
Waalstraat 35
Kaapstad

NEW PREPARATIONS AND APPLIANCES : NUWE PREPARATE EN TOESTELLE

COLIMYCIN

M. L. Laboratories announce that Westdene Products (Pty.) Ltd. have been appointed sole South African distributors of Colimycin Oral Suspension, an effective concentrated diarrhoea product, and supply the following information:

Colimycin contains 1 g. of neomycin, plus kaolin and pectin in balanced proportions per ounce of mixture in a pleasantly flavoured base. The wide antibacterial spectrum of neomycin makes Colimycin effective against almost all pathogens likely to be encountered in the gastro-intestinal tract. The addition of kaolin, an efficient adsorbent, assists materially in adsorbing bacteria and toxins in the bowel. Pectin, a purified carbohydrate, acts as an adsorbent and protects the bowel lining, while at the same time its decomposition products inhibit the growth of abnormal bacteria causing diarrhoea.

Colimycin concentrated suspension offers the following advantages:

1. Since most diarrhoeas are accompanied by nausea and vomiting, high concentration of medicament in small dosage is not only desirable but essential. (Each tablespoonful of Colimycin contains 0.5 g. of neomycin sulphate.)
2. Colimycin offers effective and almost immediate control of diarrhoea, and consolidation of stools is usually accomplished within 24 hours of commencement of treatment.
3. Because of its concentration and efficacy it has been found that therapy with Colimycin is economical, since 2 fluid ounces or, at the most, 4 fluid ounces is a complete course of treatment.

The advantage of a product that can offer effective and almost immediate control of diarrhoea, even in infants, is very important. Since control of diarrhoea is effected so rapidly, side-effects are unlikely to be encountered with Colimycin.

Recommended dosage is as follows: Adults—1 tablespoonful stat. and 1 dessertspoonful 4-6 times daily. Children—1 dessertspoonful stat. and 1 teaspoonful 4-6 times daily. Infants—1 teaspoonful stat. and half teaspoonful 4-6 times daily.

Samples, information and literature are available on request from: Westdene Products (Pty) Ltd., P.O. Box 7710, Johannesburg. See also advertisement on p. xxvi.

FLAGYL

Maybaker (S.A.) (Pty.) Ltd. announce the introduction of a new antitrichomonial agent, Flagyl brand metronidazole, and supply the following information:

Flagyl represents an important advance in the treatment of *Trichomonas vaginalis* infections in females and males since it provides, for the first time, effective and well-tolerated systemic therapy. The simple regime of treatment—1 tablet by mouth 3 times daily for 7 days—has been found adequate even in many long-standing vaginal infections.

Flagyl tablets are available in a prescribed unit of 21×200 mg. tablets.

Further information may be obtained from Maybaker (S.A.) (Pty.) Ltd., P.O. Box 1130, Port Elizabeth. See also advertisement on p. xxiii.

BOOK REVIEWS : BOEKBESPREKINGS

ENERGIERYKE STRALE

Leitfaden des Strahlenschutzes für Naturwissenschaftler, Techniker und Mediziner. Von Dr. H. R. Beck, Dr. H. Dresel und Dr. H.-J. Melching. Pp. xii + 253, 100 Abbildungen, 19 Tabellen. DM 36.-. Stuttgart: Georg Thieme Verlag. 1959.

Enigeen wat 'n omvattende oorsig verlang van ons kennis van energieryke (ook bekend as ioniserende) strale tot 1959,

sal hierdie boek van waarde vind. Die begrippe 'energieryke' en 'ioniserende' behels subtile verskille, wat dit nodig gemaak het om ander mate langs die röntgen of 'r' te gebruik, soos die rad en die rem.

Die werk handel veral oor beskerming, maar om beskerming verstaanbaar te maak word 'n oorsig gegee oor die geskiedenis en fisiese eienskappe van energieryke strale, hulle meting, biologiese uitwerking, bestralingskade, en genetiese gevolge. Daar is dus baie wat basies is. Omdat dit nie alleen vir

medici bedoel is nie, maar ook vir natuurwetenskaplike en tegnici, is daar 'n aantal formules wat vir ons beroep maar moeilik verstaanbaar is, maar wat onvermydelik is met so 'n oorleueling van sfere.

Die vinnige ontwikkeling veroorsaak dat besliste uitsprake nog nie gegee kan word nie, maar omdat bestraling steeds meer aangewend word in die geneeskunde, die tegniek, in navorsing en op militêre gebied, word praktiese maatreëls vereis. Die tyd kom nou dat juriste, die versekeringswese, en politici ook met hierdie probleme te doen kry.

Die begrip beskerming is meer een van die toelaatbare dosis, omdat daar 'n natuurlike bestraling is soos grondstrale en kosmiese strale waaraan 'n mens nie kan ontkom nie. Die ewig is bereik sover dit bogenoemde betrek, maar weens die kunsmatige bestraling, wat kumulatif en skadelik is, moet die grootste toelaatbare dosisse vasgestel word. Daar is ook 'n pleidooy dat dit wetlik vasgelê moet word.

Eksperimenteel is reeds afdoeende bewys dat energieyke strale die vrug *in utero* kan beskadig en mutasies kan veroorsaak. Oor die algemeen hang die skade af van die duurte van swangerskap — hoe vroeër die swangerskap, hoe groter die skade. Daar word aanbeveel dat gedurende swangerskap geen terapeutiese bestraling gegee word nie, en dat diagnostiese maatreëls in die bekkenomgewing tot die laaste maande beperk moet word. Verder moet by vrouens plate van die bekken by voorkeur onmiddellik na menstruasie geneem word.

Terwyl die toelaatbare dosis in die laaste jare steeds kleiner gemaak is, word steeds groter dele van die bevolking aan die invloed van strale blootgestel. Hierdie gesamentlike dosis is een van die belangrikste probleme wat ontstaan. Die grootste toelaatbare dosis vir die totale bevolking is 10 rem vir die eerste 30 lewensjare. Vir enkele persone wat met bestraling werk is dit 5 rem per jaar, volgens ons huidige kennis. A.D.K.

DRUGS OF ADDICTION AND HABITUATION

Problems of Addiction and Habituation. Edited by Paul H. Hoch, M.D. and Joseph Zubin, Ph.D. Pp. xii + 250. Illustrations. \$6.50. New York and London: Grune & Stratton, Inc. 1958. There are 15 papers in this volume, dealing with addiction to narcotic drugs, alcoholism, effects of the use of coffee, fits and insanity from withdrawal of drugs, and eating by children of substances not fit for food (pica). Interest is added by critical appraisal of the papers by discussants present at the 1957 meeting of the American Psycho-pathological Association.

Sandor Rado contributes a brilliant chapter on *narcotic bondage*, setting out his general theory of the dependence on drugs of addiction. The precipitating aetiological factor is a state of depression. Discovery of the drug enables the patient, by means of addiction, to induce upon himself a form of personality repair. The drug puts an end to my despair; it makes me feel happy; it restores my self-confidence . . . I cannot live without it'. However, this malignant attempt at personality repair through artificial narcotic elation leads to further problems. The pleasure derived from drugs corrupts the individual's ordinary adaptive efforts; the super-pleasure displaces the more slowly gained rewards of healthy life. Moreover, in addition to his basic depression, the addict has brought upon himself bodily changes which can only be palliated by still further doses of the drug. But it is the intoxicating pleasure-effect of the addictive drug which Rado identifies as the main threat to the addict's social adaptation.

Giedman's article on group therapy in chronic alcoholism is excellent, and Masserman summarizes his own and other experimental work on induced neurotic and psychotic behaviour in animals. H.W.

INFANT FEEDING

Notes on Infant Feeding. Fifth edition. By Stanley Graham, LL.D., M.D., F.R.C.P. (Ed.), F.R.F.P.S. (Glas.) and Robert A. Shanks, M.D., M.R.C.P. (Lond.), F.R.F.P.S. (Glas.). Pp. 76. 4s. 6d. net + 6d. postage. Edinburgh: E. & S. Livingstone Ltd. 1960.

These notes were compiled primarily for medical students although the authors express the hope that the family doctor will find them useful. Within some 60 pages of text a wide field is covered: breast feeding, artificial feeding, the feeding of prematures, correct and incorrect feeding, failure to thrive,

and vomiting and diarrhoea. It is obvious that these subjects cannot be dealt with in any detail in so short a book.

The artificial feeding method advocated is based on the calorie metabolic unit and some may find the computation of actual feeds on this basis, particularly for the undernourished infant, somewhat intricate. Only one of the dried-milk preparations mentioned is available in South Africa and it is clear that the British unsweetened condensed milks differ in dilution, and therefore in composition, from similar products procurable in this country.

Nevertheless, this booklet contains a considerable amount of useful information which should be valuable as an introduction to the feeding of healthy babies, prematures, and infants suffering from certain dietetic deficiency disorders. W.E.

CINEFLUOROGRAPHY

Cinefluorography. Proceedings of the First Annual Symposium on Cinefluorography, sponsored by the Department of Radiology, University of Rochester, School of Medicine and Dentistry, New York, Friday and Saturday, November 14 and 15, 1958. Edited by George H. S. Ramsey, M.D.; James S. Watson, Jr., M.D.; Theodore A. Tristan, M.D.; Sydney Weinberg; and William S. Cornwell, M.A. Pp. xvi + 266. Illustrated. 94s. Springfield, Ill.: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 1960.

This book comprises the proceedings of the First Annual Symposium on Cinefluorography, being a series of lectures with subsequent discussions. The emphasis is almost entirely on the technical aspects and apparatus, and little of the clinical application is included. It is clear from that book that many technical problems remain to be solved before cinefluorography can become a universal diagnostic procedure. In every choice, whether of intensifier, optical system, camera, films, or even processing and viewing techniques, a compromise is required between manoeuvrability, intensification, field size, definition, contrast and both capital and running expense. Though these problems are discussed comprehensively and with great technical detail in this volume, the radiologist will derive little help in making his choice from it. On the other hand, no user of cinefluorography can afford to be without the book.

M.W.

BIOLOGY AND NEUROLOGICAL DISORDERS

Biochemical Aspects of Neurological Disorders. Edited by John N. Cumings, M.D., F.R.C.P. and Michael Kremer, M.D., B.Sc., F.R.C.P. Pp. x + 230. Figures. 37s. 6d. Oxford: Blackwell Scientific Publications Ltd. 1959.

This is a timely and successful book full of important material of major significance to all interested in scientific medicine, which means, of course, every doctor under the age of 70. Or is this too naive a view? While there is nothing strictly original about its contents, the editors have happily been able to gather together a number of contributors (including themselves) who, in their lectures, combine the scientific skill of the biochemist and the wise appreciation of clinical application, for this is a compilation from a series of lectures delivered at Queen Square. To search among the literature for all this information would be a laborious, even though worthwhile, task and one of the merits of this book is its wide survey of the relationship between many neurological disorders and biochemical disturbances. The reader will find it a most stimulating book and one full of promise for the future of medicine which seems, in many different medical spheres, to be closely bound up with chemistry.

S.B.

NEUROLOGICAL RESEARCH

Recent Neurological Research. Edited by A. Biemond, et al. Pp. x + 330. 7 figures. 47s. 6d. Amsterdam, London, New York, Princeton: Elsevier Publishing Company. 1959.

This is a sort of *festschrift* compiled on the occasion of the 50th anniversary of the Amsterdam Neurological Society. It comprises some 28 papers covering both clinical neurology and a vast field in the related neurological sciences. Some idea of the diversity of interests of Dutch neurologists may be gathered from a few of the titles: Pleocytosis in the CSF as a

first symptom of malignant growth in the CNS; Histopathogenesis and malignant degeneration of experimental oligodendroglomas in the rat; Diabetes insipidus in neurosurgical cases; A comparative study of the hodology of the cord of some ungulates and the elephant.

Holland is a small country but it has an impressive scientific tradition and in the field of neurology and its related sciences it has set an example to many a larger and wealthier state. One pays tribute to the organized development of scientific neurology that exists there, and this book is recommended to neurologists and pathologists for its intrinsic interest, and also to those in any way concerned with the encouragement of scientific medical developments in this country, who may perhaps be prompted to do a little in this neurologically backward land of ours.

S.B.

OBSTETRICS AND GYNAECOLOGY

Clinical Obstetrics and Gynecology, vol. 2, no. 4. *Cesarean Section*, edited by Edwin J. de Costa, M.D. *Advances in Gynecologic Surgery*, edited by S. B. Gusberg, M.D. Pp. 303. Illustrated. Subscription \$18.00 a year. New York: Paul B. Hoeber, Inc. 1959.

Caesarean section has of late taken a very prominent place in obstetrical practice, and very few books give such a complete account of the indications, techniques and results as the first part of this volume. A whole chapter is given to Caesarean hysterectomy and the author recommends it in cases where a sterilization is necessary in conjunction with a Caesarean section. This is a dangerous recommendation, especially in South Africa, where so many Caesarean sections are carried out by general practitioners and sometimes under very primitive circumstances. An interesting chapter is that on supravesical extraperitoneal Caesarean section, which is not much practised in this country. In this age of diminishing dangers of sepsis, this form of the operation surely does not need much consideration.

Although the latter part of this volume is entitled 'advances in gynaecological surgery', very little is mentioned which has not been in gynaecological literature for a few years. Cervical

incompetence, which has received an unduly prominent place in gynaecology, is again discussed in detail; an interesting technique is described for the non-pregnant woman. The last chapter, on gynaecological examination, is extremely useful for the medical student.

For the busy gynaecologist with little time to read, these volumes still remain valuable additions to his library.

R.W.A.N.

BORS- EN HARTSIEKTES

Diseases of the Chest including the Heart. Edited by J. Arthur Myers, Ph.D., M.D. Pp. x + 1015. Illustrations. £13 16s. Springfield, Ill.: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 1959.

Hierdie boek poog om die gebied van long- en hartsiektes volledig te dek. Die klem word egter gele op die nuutste beskouings en ontwikkelings. Omrede van die wye gebied wat behandel word, moet dit noodwendig geskied dat baie hoofstukke maar 'n beknopte samenvatting gee van die onderwerp (bv. die hoofstuk in verband met hipertensie).

Die skrywers van die verskillende onderdele is almal ervare en bekende persone elk op sy eie gebied, en hulle is dus in staat om die belangrikste aspekte te kies en kortlik weer te gee.

Deel I, wat oor die longe handel, maak die grootste gedeelte van die boek uit — sowat twee-dertes. Dié deel is dan ook meer volledig en beter opgestel as deel II wat oor die hart handel. Laasgenoemde onderwerp kan dan ook met moeite in 360 bladsye behoorlik afgehandel word.

Benewens die uitbeelding van siektoestande word daar hoofstukke afgestaan aan die meer belangrike anatomiese en fisiologiese begrippe. Ook word die mikrobiologiese aspekte nie verontgaan nie, en dele word selfs afgestaan aan 'n uitensetting van chirurgiese metodes, veral met aanpassing van oop hart-operasies. Daar is ook 'n hoofstuk gewy aan beserings van die hart en die groot vate.

Die geheel maak 'n nuttige naslaanboek uit en behoort deur almal wat belangstel in borskassiektes aangeskaf te word.

A.J.B.

CORRESPONDENCE : BRIEWERUBRIEK

ORAL DIURETICS AND ANTIHYPERTENSIVE DRUGS
To the Editor: Oral diuretics and antihypertensive drugs are being used in general practice in ever-increasing quantities. It may, therefore, be of interest to other general practitioners to hear of one biochemical consequence of taking some of these drugs.

A short time ago I took over the treatment of a hypertensive patient who had a long history of both hypertension and gout. Although the acute episodes of gout were very infrequent, once a year at the most, the clinical history was typical. As he had had little medical treatment in the past, I started him off on reserpine tablets, 0.25 mg. *t.d.s.*, and he had a satisfactory response. In order to try and get the diastolic pressure a little lower, I thought I would add bendroflumethiazide tablets, 2.5 mg. *b.d.* ('Pluryle'), to the reserpine. Within 2 weeks he developed the most severe attack of gout he has ever had. His blood uric acid was 4.9 mg. per 100 ml.

On checking the aetiology of gout in Cecil and Loeb's *Textbook of Medicine*, and seeing that Professor Hench named mercurial diuretics as a possible precipitating cause, I thought perhaps oral diuretics might have the same effect. I then took the patient off the bendroflumethiazide and he soon got better on colchicine.

It was with special interest, therefore, that I saw in the issue of the *British Medical Journal* for 17 September 1960 an article from the Hammersmith Postgraduate Medical School entitled 'Hyperuricaemia related to treatment of hypertension'. In this survey the authors took all the serum uric-acid levels of patients receiving antihypertensive drugs at their out-patient clinic, those with a history of gout being excluded, and also the levels of patients not receiving treatment. In addition they were able to compare serum uric-acid levels before and after treatment of new patients.

The authors conclude that chlorothiazide and the ganglion-blocking drugs are responsible for the elevation of the blood uric acid in treated hypertensive patients, and that it is significant to note that the largest increases were observed in patients on chlorothiazide.

There seems tremendous scope for further investigations on these lines.

Peter Lane

P.O. Box 5
Mqanduli, Transkei
19 October 1960

1. Dolley, C. T., Duncan, H. and Schumer, B. (1960): *Brit. Med. J.* 2, 832.

PAYMENT BY INSURANCE COMPANIES

In the issue of the *Journal* for 24 September 1960 a letter was published in which the opinion was expressed that a certain procedure adopted by a medical aid society administered by an insurance company was 'most illegal and immoral'. The insurance company concerned took strong exception to these words.

In considering this matter as objectively as possible, we feel that there has been a serious lack of understanding on the part of both parties involved (the insurance companies and the doctors) of the aims and objects and motives of each other. This lack of understanding led to hard blows being dealt by both sides.

It is against this background that words such as those referred to have been used. On reflection, and with reference to all the available and relevant information, we feel that the use of these words was unfortunate. Editor.

1. Correspondence (1960): *S Afr Med J.* 54, 839.

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